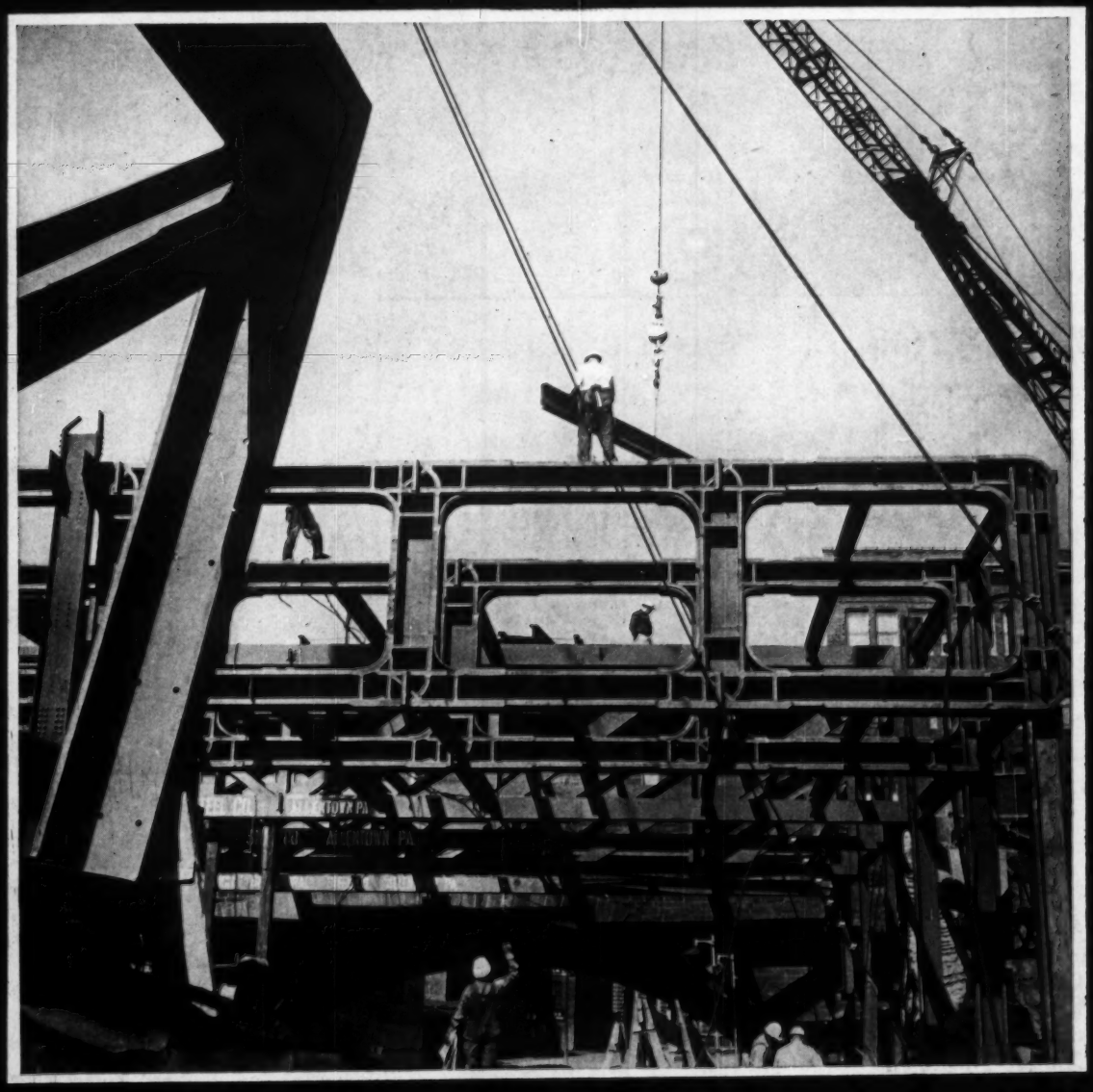
ENGINEERING NEWS-RECORD



E B POWER
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A McGRAW HILL PUBLICATION

In Bay Village, Ohio—Cuyahoga County Engineers combat corrosion in a **BIG WAY...**

WROUGHT IRON used for 48-inch Sewage Line

There was no question about the corrosion factors involved in the sewage line planned to serve Bay Village, Ohio. Compounding the problem was the almost inaccessible location that would make repair and maintenance difficult and expensive. And added to these considerations was the need for a material with sufficient structural strength to permit a 60-foot span between two trusses on either side of the valley the line had to cross. Cuyahoga County Sanitary Engineers, under the direction of Mr. John Puzenski, answered all these requirements with wrought iron. More than 37 tons of ½-inch wrought iron plate was fabricated into 48-inch diameter pipe and installed in approximately 270 feet of the sewage system.

Morgan Steel Products, Inc., Cleveland, Ohio, handled the fabrication. Installation work was done by The Utilities Construction Company, Cleveland, Ohio.

Our bulletin, *Wrought Iron for Sewage Treatment and Disposal Installations,* gives complete details on wrought iron's ability to last longer, at lower cost per year. Write for your copy.

"Operation Pipe Lift"—48-inch diameter section of wrought iron pipe being readied for shipment from Morgan Steel Products, Inc., fabricators.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. International Division: New York, N. Y. *Available throughout the world.*

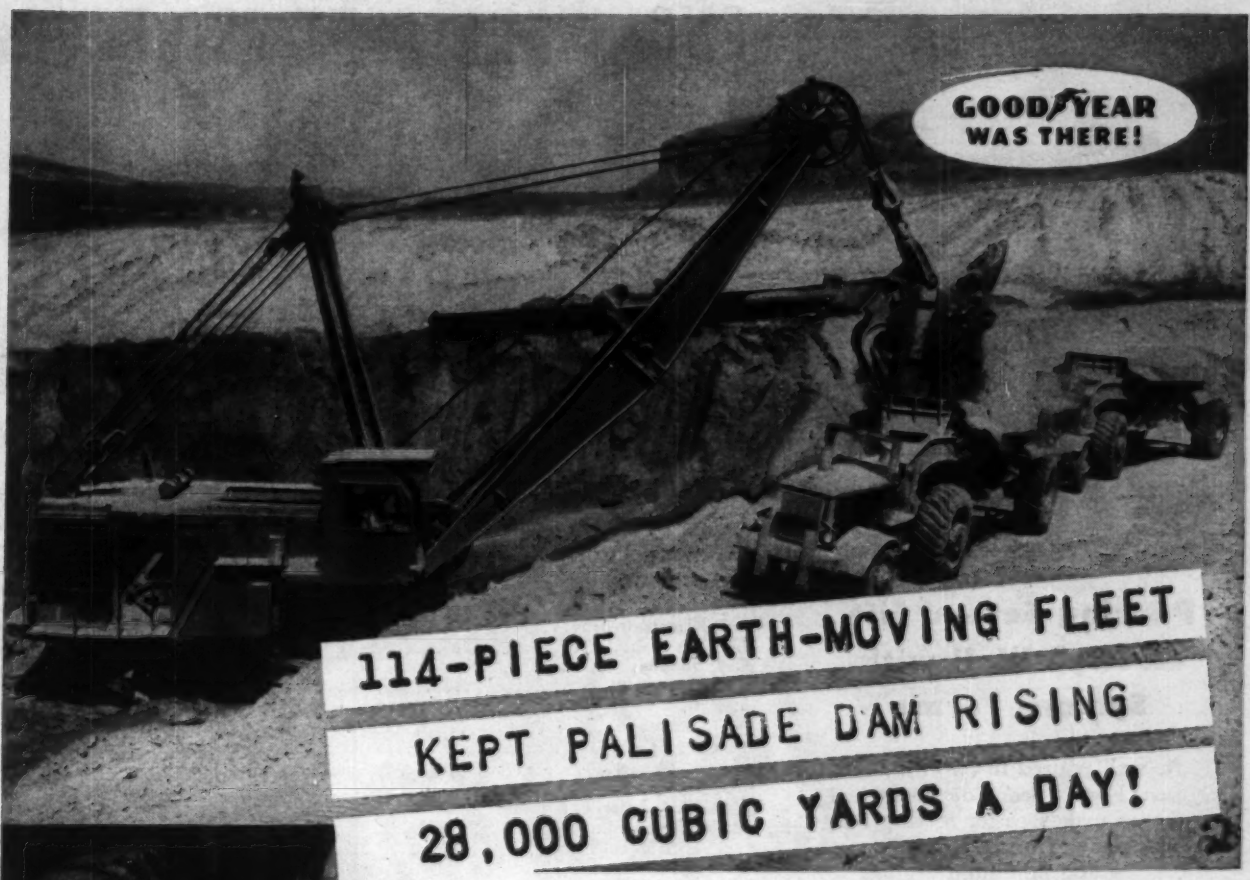
BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY STEEL PRODUCTS



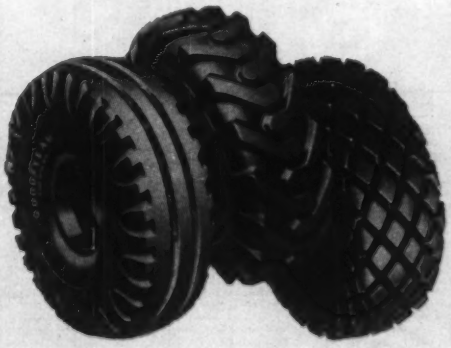
The 13,800,000-cubic-yard Palisade Dam on Snake River, Idaho, is one of the world's largest earth-fill barriers — 260 feet high, 2,200 feet long by 40 feet wide at the crest, and 2,250 feet wide at the base. Wrenching the treacherous Snake River from its bed to a man-made channel (with 60 miles of momentum behind the river) was just one of the problems this job dished out regularly!

GIANT HARD ROCK LUGS, as all types of tires used on this job, get expert, periodic inspections that save rubber and down time.

Wherever there's a job-for-the-book, GOODYEAR IS THERE. Yes — *all* there — with the right type tire for each job, with the *toughest* tires ever, because now they're built with new, Triple-Tempered (3-T) Cord!

3-T Cord—both Nylon and Rayon—is made by Goodyear's exclusive Triple-Tempering process. It *stays* at its most bruise-resistant, heat-resistant point, controls tire growth, cuts tread and body failures to new lows. Get *all* the facts before you buy or specify any other tire. Goodyear, Truck Tire Dept., Akron 16, Ohio.

GET THEM IN 3-T NYLON
for greatest all-round stamina



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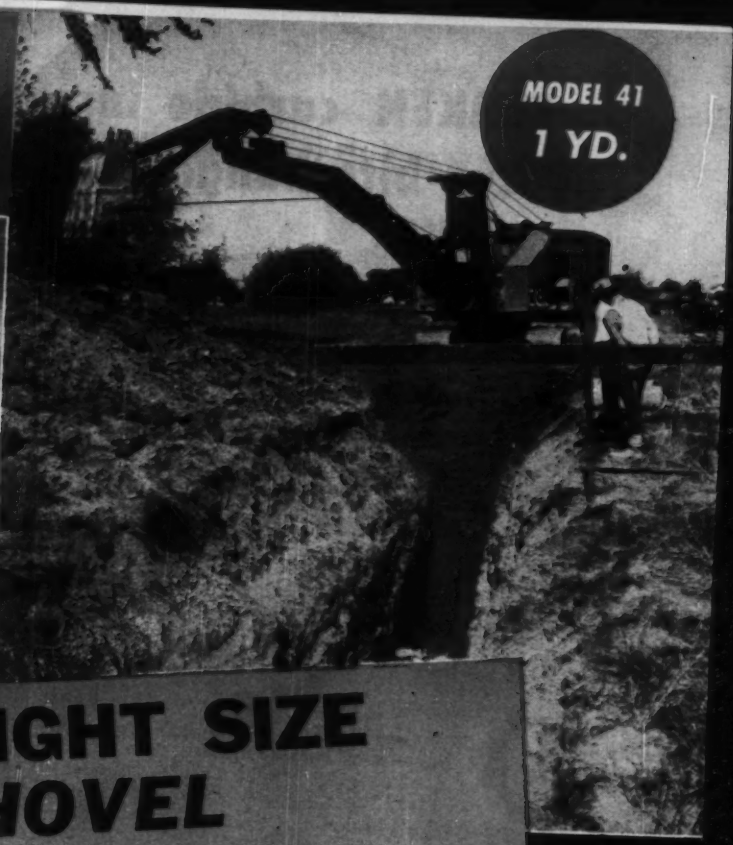

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GET THE RIGHT SIZE *PULLSHOVEL* For Your Jobs

What size ditching and trenching job? Northwest has the rig for it—four sizes to choose from: ¾-yd., 1-yd., 1¼-yd. and 2½-yd. capacity!

When planning for your next Pullshovel job, remember, that every size of Northwest Pullshovel has been proved in service beyond any other similar equipment. Northwest Pullshovels are fast, give you plenty of reach and high output. Ask for a catalog and talk your problem over with a Northwest Man.

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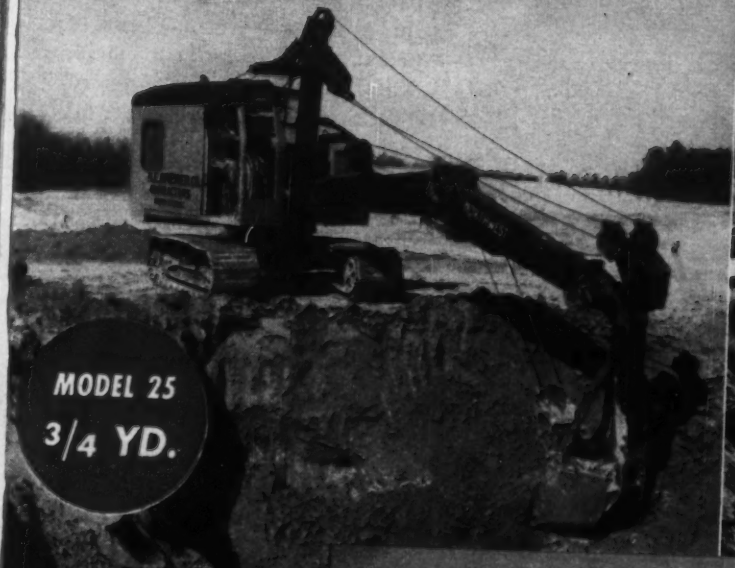


MODEL 25
3/4 YD.

MODEL 80D
2 1/2 YD.

NORTHWEST

TIMKEN® carbide insert bits boost drilling speed, cut bit changes on New York-Buffalo thruway

ROCK Construction Corporation, a contractor on the new-billion-dollar New York to Buffalo superhighway, chose Timken® carbide insert bits to drill faster through granite gneiss near Elmsford, N.Y. The Timken carbide insert bits chewed right through the tough, abrasive rock. And they reduced costly time-outs for bit changes.

But though they are ideal for fast drilling through hard, abrasive ground and for constant-gauge holes, small-diameter blast holes and very deep holes, Timken carbide insert bits are not best for *every* job!

You'll find Timken multi-use bits most economical for ordinary ground. With proper reconditioning, they'll give you the lowest cost per foot of hole when full increments of steel can be drilled.

Both Timken bit types—multi-use and carbide insert—have these advantages: quickly and easily changed; special shoulder unions which protect threads from drilling impact; made from electric furnace Timken fine alloy steel. What's more, many sizes of Timken carbide insert and multi-use bits fit the same steel!

Make *sure* you're using the best type for the job—call on the Timken Rock Bit Engineering Service. The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

Timken threaded multi-use rock bit

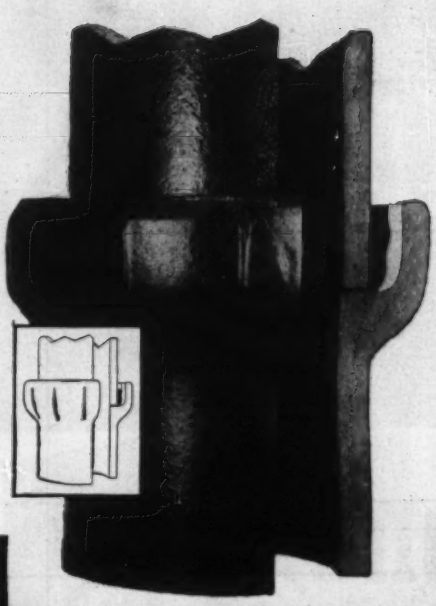
Timken threaded carbide insert rock bit

...your best bet for the best bit ...for every job

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

CUT SEWER CONSTRUCTION COSTS WITH NEW AMVIT JOINTED CLAY PIPE



Factory-made and delivered ready for immediate installation

New Amvit Jointed Vitrified Clay Pipe is ready for installation the minute it's delivered. The job can be done quickly and easily. No special preparations are needed.

Built-In, Mechanical Joint

The Amvit Joint is "built-in". It is a true mechanical joint based on the ball and socket principle. The diameter of the spigot ring is somewhat larger than the largest diameter of the bell ring. When the two ends are pushed together the rings are in constant compression. Water cannot force its way in or out.

Specify Amvit Jointed Clay Pipe

Cut costs of installed pipe. Prevent costly infiltration. Stop pumping and treating thousands of gallons of costly ground water. Save the city thousands of dollars in treatment plant operation.

Specify easy-to-install, permanent Amvit Jointed Vitrified Clay Pipe.

Amvit Jointed Clay Pipe is just one of the many products manufactured in our plants across the nation. American Vitrified Products Company also produces concrete pipe, clay pipe, flue liners—both glazed and unglazed, and clay liner plates.

For more information, write or call American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you.

The Amvit joint is made of a new acid resistant plastic material with rubber characteristics. Like the pipe, the joints will not be harmed by any condition of underground service. The pipe is simply pushed together. The trench is then ready for backfilling.

SINCE 1900

AMERICAN

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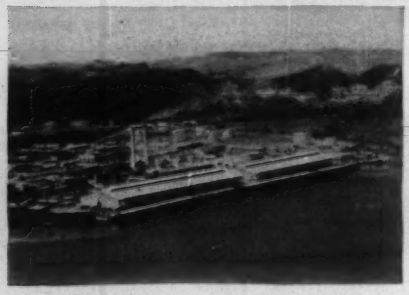
Plants Across the Nation...Brazil, Indiana • Chicago, Illinois • Cleveland, Ohio • Crawfordsville, Indiana • Detroit, Michigan • East Liverpool, Ohio Fenton, Michigan • Grand Ledge, Michigan • Lisbon, Ohio • Los Angeles, California • Milwaukee, Wisconsin • South Bend, Indiana • Uhrichsville, Ohio

RIGHT
61,449 feet of Raymond Piles support San Juan's new Constitution Bridge. In the background, the Cerra Overpass rests on 171 Raymond piles.

BELOW
Raymond's floating pile driver is shown at work on the Commonwealth Refinery Pier in Guayanilla Bay. Raymond is handling complete construction on this job. In the background is another Raymond project, the Texas Co. Pier.

BELOW
Two more Raymond projects are the San Juan Steam Electric Plant and wharf built for the Puerto Rico Water Resources Authority. Units 5 and 6 of the Steam Electric Plant are currently under construction by Raymond.



Raymond LANDMARKS IN PUERTO RICO

SINCE 1948 Raymond has handled over 38 projects ranging from pile foundations to the complete construction of such structures as the San Juan Steam Electric Plant and the Commonwealth Refinery Pier. If you're interested in foundation work or construction in Puerto Rico—or anywhere else in the world—contact Raymond Concrete Pile Co. of Puerto Rico or our New York Office.

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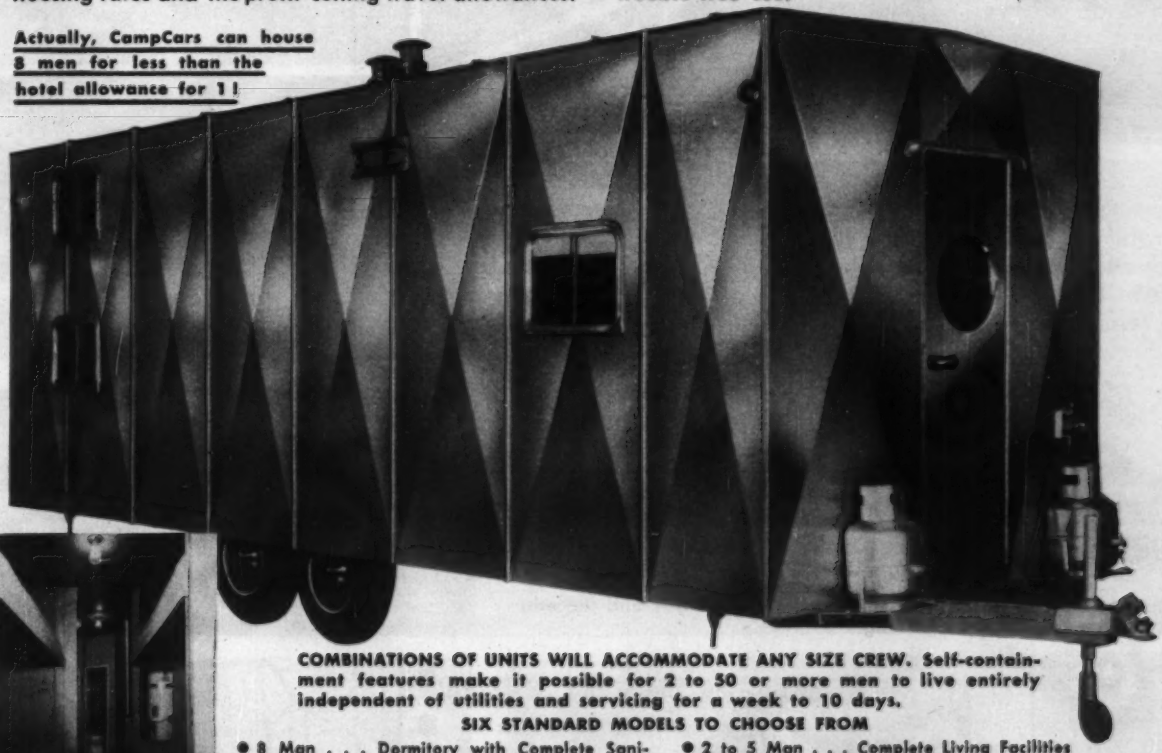
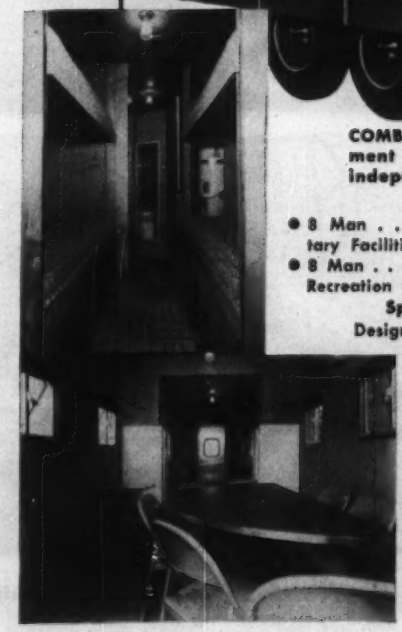
No longer need mounting travel and housing costs price you out of a competitive bidding position. Morrison International CampCars put your crews on-the-spot . . . the construction site . . . in minimum time and keep them there under the most favorable, morale-building living conditions. Gone are the costly housing rates and the profit-cutting travel allowances.

CampCars are built to withstand rough off-highway travel as well as the thousands of tow-miles expected of them. They are fully insulated to withstand the most extreme outside temperatures, resist weather deterioration and are provided with safety features on all utility and sanitary equipment to assure safe, trouble-free use.

Actually, CampCars can house 8 men for less than the hotel allowance for 1!





COMBINATIONS OF UNITS WILL ACCOMMODATE ANY SIZE CREW. Self-containment features make it possible for 2 to 50 or more men to live entirely independent of utilities and servicing for a week to 10 days.

SIX STANDARD MODELS TO CHOOSE FROM

- 8 Man . . . Dormitory with Complete Sanitary Facilities and Shower
- 8 Man . . . Combination Kitchen, Dining and Recreation Car
- 2 to 5 Man . . . Complete Living Facilities
- Complete Kitchen Car with Living for 2
- Dining and Recreation Car accommodates up to 22
- Office and Tool Car with Living for 2

Special Interior Layouts can be designed to suit your specifications

Designed and Manufactured by the Pioneer of Mobile Housing for Construction Crews

SHOWN UPPER LEFT: 8-man Dormitory CampCar showing 4 man-size bunks, with storage drawers and shoe lockers under bunks; also, enclosed dry chemical toilet.

SHOWN LEFT: 8-man Combination Cooking and Dining CampCar showing large dining and recreational area, plus 2 refrigerators, ample storage lockers and complete cooking facilities.

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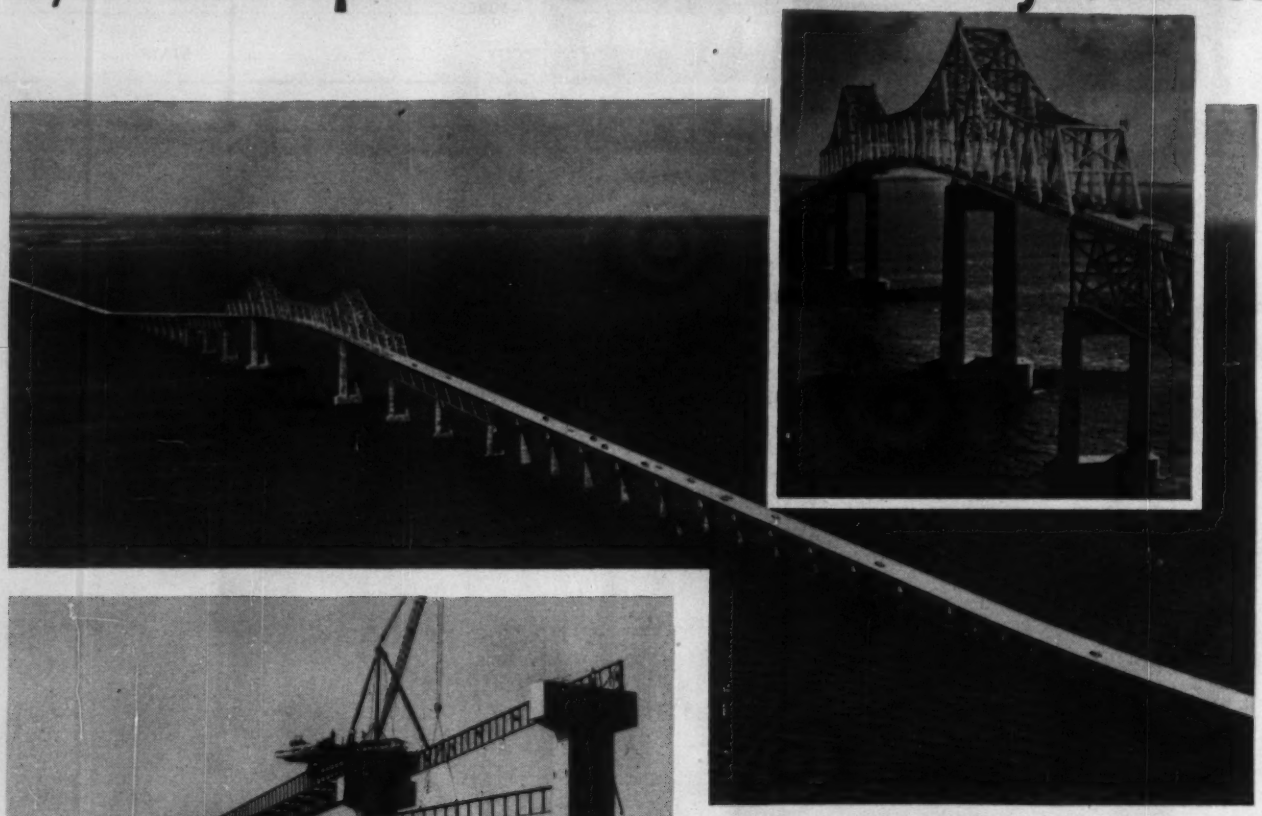
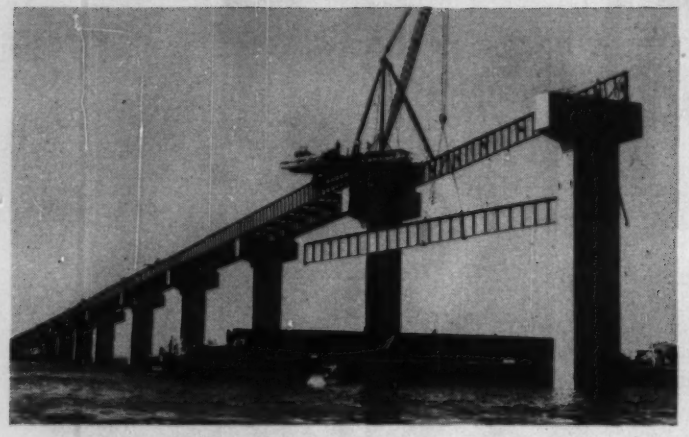
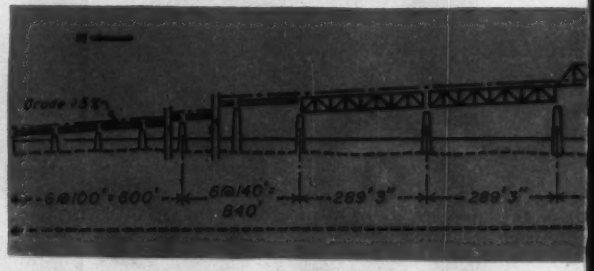
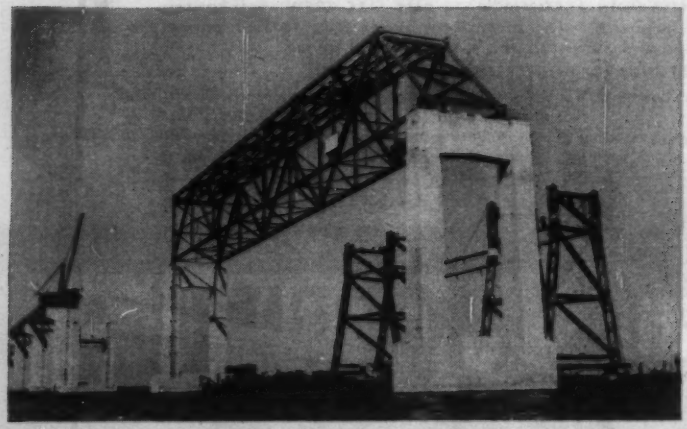




One deck plate girder has been landed on its shoes and the other is being made ready for landing.





Span in position as barges with falsework move away from site.

Looking down on I-Beam-Lok open-type steel flooring of the 864' main span over ship channel.

Bridge is a Remarkable Engineering Achievement

Working entirely over water, AMERICAN BRIDGE erects long, high section in 15 months!

Biggest single project on Florida's monumental $21,000,000 Sunshine Skyway across Lower Tampa Bay is the 22,300-foot Mullet Key Channel Bridge shown at the left.

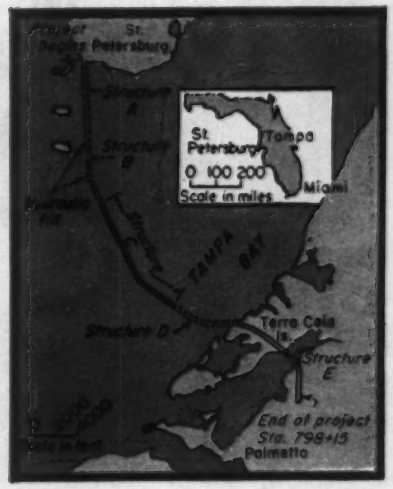
Both ends of structure "C" of this bridge are miles from the nearest land. Erection of the 5,621-foot, 6,300-ton steel superstructure was done entirely over water with girder and truss approach spans being floated to the site on special barges.

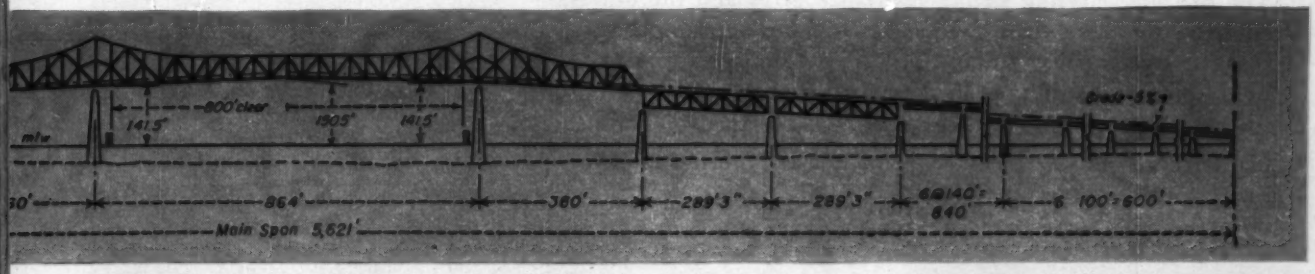
There are 31 steel spans totaling 5,621 feet in length in the section fabricated and erected by American Bridge. The through cantilever truss structure is 1,584' long with a 864' main cantilever span. Vertical clearance under the main span is 150'6" above mean low water.

The bridge carries one 28' roadway and two 2' sidewalks. The main span of the cantilever structure has open-type USS I-Beam-Lok lightweight steel flooring.

Erection of this long, high structure began in May 1953 and was completed, despite a series of unfavorable working conditions, on schedule in September 1954—just 15 months after the difficult job was begun.

The engineering "know-how" and the skilled manpower that American Bridge brought to this unusual project is available *anytime, anywhere* to help you save time and money on any job involving the fabrication and erection of structural steelwork. For a detailed discussion of your plans, contact the office nearest you.





Bridge contains 6,084 tons of structural steel, consisting of:

One Through Cantilever Truss structure, 1,584' long, composed of two 360' Anchor Spans, two 252' Cantilever Arms, and One 360' Suspended Span. Cantilever structure weighs approximately 2,700 tons.

Four Deck Truss Spans 289'-3"—two flanking each end of cantilever structure.

Twelve Deck Plate Girder Spans 140' long—six in each approach.

Twelve Deck Plate Girder Spans 100' long—six in each approach.

Total weight of structural steel is 6,084 tons. Weight of I-Beam-Lok open-type steel flooring is 238 tons.

CREDITS:

Owner: STATE ROAD DEPT. OF FLA.

Design and Supervision of Construction by: PARSONS, BRINCKERHOFF, HALL & MACDONALD.

Fabricated and Erected by: AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORPORATION.

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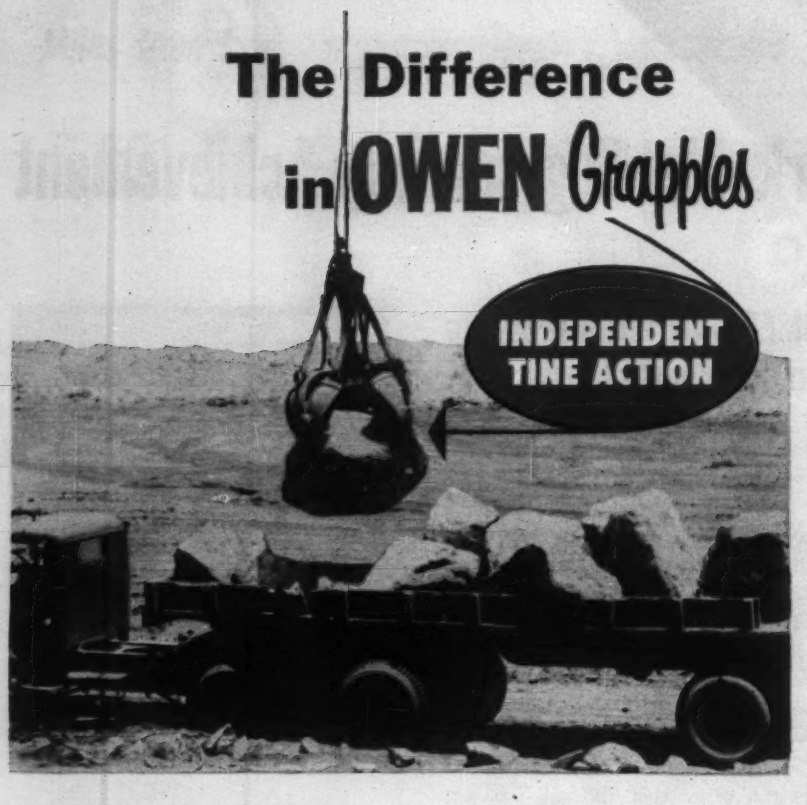
AMERICAN BRIDGE

USS

UNITED STATES STEEL

The Difference in OWEN Grapples



How can Owen Grapples *grasp* odd shaped stones and *hold* them securely under seemingly impossible conditions?

The answer is easy and logical...Owen is the *only grapple in which each tine operates independently.*

When power is applied all tines move toward the center. The one first meeting strong resistance grips and the others continue to move until each meets similar opposition. The result is tremendous gripping power and ability to grasp and hold objects regardless of their unusual shapes.

Send today for the Owen Rock Grapple Bulletin which explains this exclusive patented principle and illustrates many interesting handling operations.

READER COMMENT

Turnpike System Needed

SIR: "I've just finished reading your editorial, "A Dismal Failure," and the news report "Pressure for Big Road Program Will Mount" in ENR for August 4.

I agree with what is said in both. However, I believe there is another solution—or partial solution to the national road problem.

The proposal, which I wish to submit to you—and to the readers of the Engineering News-Record — is that something be done as soon as possible, about setting up an organization to plan—to publicize—and get construction started on a National Turnpike System.

So far, such roads have been the independent ventures of individual states. Many of them have worked out very well. But I am convinced that both existing and future turnpikes—or toll roads—would serve the public better and prove themselves a better financial risk, if they could be consolidated in a national network.

I know that it couldn't all be done at once. I know it would take some time, some work and money. The more necessary links — those which studies indicate would prove the best investments would come first.

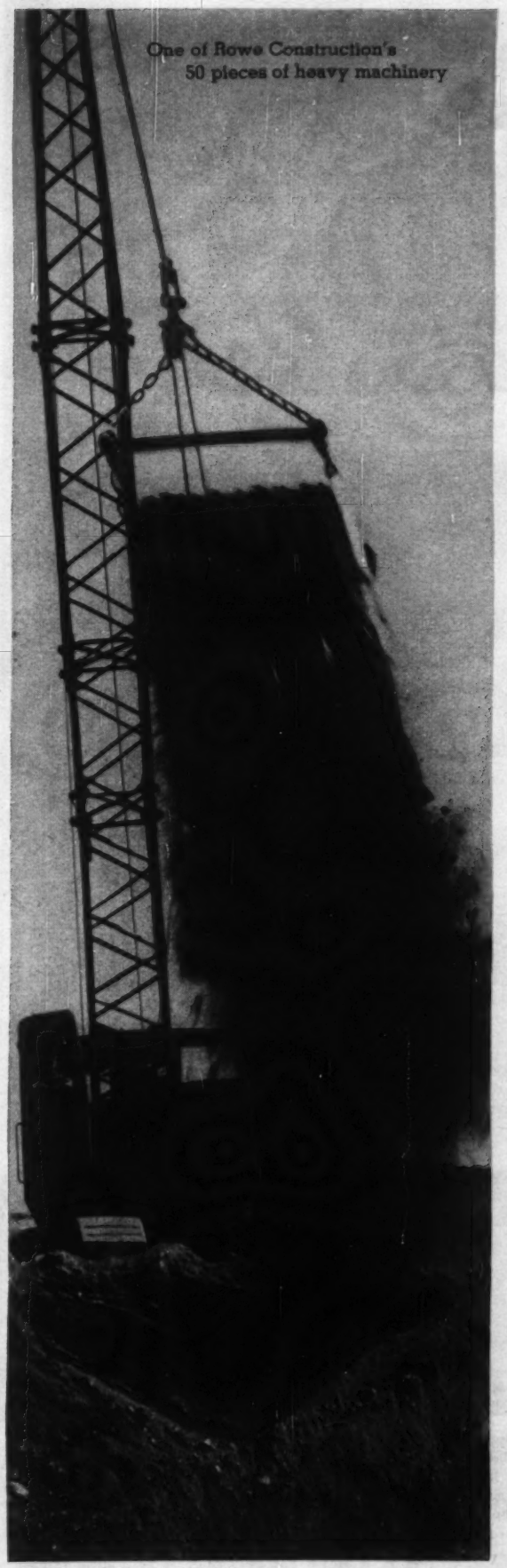
First, the public and the lawmakers of states through which such roads would pass must be convinced of the desirability and necessity of such roads.

Once the system is started—once the more necessary links are built, and the whole network begins to shape up, I am convinced that the increasing amount of traffic would prove the necessity of extending the system until it embraced—and served—every major community in the U. S. A.

But—as I realize—the first thing to do, is to get enough people—and the right people, interested in the idea. I think it ought to be done. I think it can be done. I think the country needs it. I think it would pay off—would stimulate, enrich and strengthen the whole economy.

It seems to me that many industries and businesses who are interested in more and better roads would support such an organization. I believe too that most governors, and senators and representatives in Congress would support such a plan. For in the end, regardless of how it is done, the people who use the roads must pay for them. In this respect—since those who use them most pay the most—the

(*Continued on page 14*)



One of Rowe Construction's 50 pieces of heavy machinery

"Fifty Pieces of Heavy Machinery... No Sludge, No Carbon!"

Cat Motors Now Run 12,000 Hours Before Overhaul with Cities Service C-300 Motor Oil!

For the last 30 years, Delmar Rowe has been building roads. And for the last seven years, Cities Service Lubricants have paved his way to greater profits. The firm is Rowe Construction Co., Bloomington, Illinois... and since 1925, it has not only built countless roads, but has also reclaimed land, supplied gravel, and constructed sewers and water mains throughout the Bloomington area.

Rowe's choice of Cities Service Lubricants was no hit-or-miss proposition. "At that time," he says, "I'd had 23 years observing down-to-earth lubrication problems with construction machinery... and I was determined to find lubricants that gave the down-to-earth performance to solve these problems. Cities Service supplied the answer."

HOW RIGHT WAS ROWE? His Cat motors are a good example. They now run as long as 12,000 hours before overhaul using Cities Service C-300 Motor Oil. He reports: "There's no sludge or carbon problem and bearing life has been excellent. Other pieces of equipment show similar results. Obviously, we're saving on maintenance costs, and obviously it's showing up in the profit column."

Delmar Rowe is but one more construction man who's found Cities Service Lubrication the road to increased efficiency, lowered costs. Why not learn what it can do for you? Contact your nearest Cities Service representative or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

Tough Jobs for Tough Machines. Rowe has 50 pieces of heavy machinery constantly at work, including 8 drag line cranes, 2 crushing plants, 4 bulldozers, 5 end loaders and 28 cars and trucks.

One of Rowe's 19 Dump Trucks fills up with Cities Service Gasolene...a powerful treat for a hungry engine. Rowe also uses Cities Service Diesel Fuels, C-300 Motor Oil, and Trojan Greases.

Why BRIXMENT IS WATERPROOFED

Brixment is waterproofed during manufacture, with the most effective air-entraining, water-repelling agent known.

The fact that Brixment is waterproofed can be demonstrated by making the crater test shown in Figure 1. Brixment's *effectiveness* in preventing the passage of water through the mortar can be demonstrated by making the test shown in Figure 2.

* * * * * *

Waterproofed Brixment gives you three practical benefits which are not available in ordinary cement-and-lime mortars:

1 HELPS PREVENT LEAKY WALLS

Even under pressure, water cannot readily pass through Brixment mortar. Therefore, if the face brick are backplastered with Brixment mortar, a barrier is set up against the passage of water to the inside of the wall.

2 GREATLY INCREASES DURABILITY

Water cannot readily penetrate Brixment mortar. This prevents the mortar from becoming saturated — therefore helps protect it from the destructive action of freezing and thawing to which it is subjected many times each winter.

3 HELPS PREVENT EFFLORESCENCE

Waterproofed Brixment mortar checks the passage of water and keeps it from percolating down through the wall, dissolving salts which may be in the masonry materials, and carrying them to the surface.

Louisville Cement Co., Louisville 2, Ky.

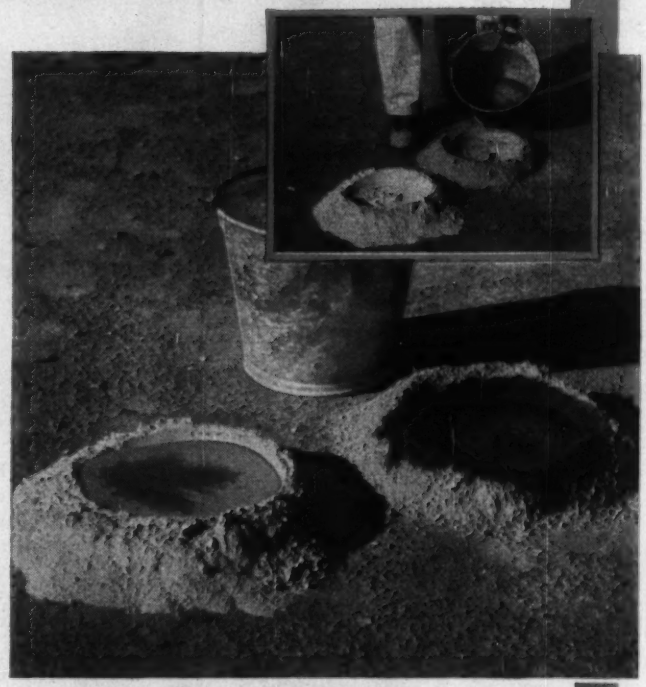
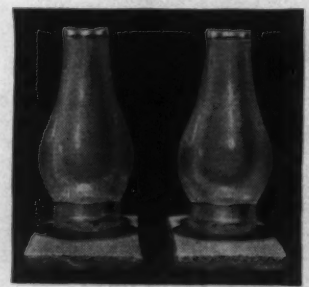


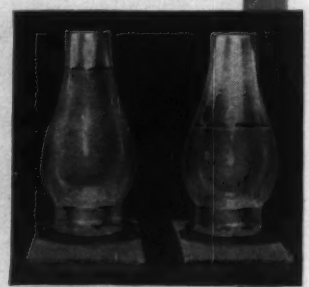
FIGURE 1

Pour out a pile of Brixment and a pile of ordinary cement and lime. Make a crater in the top of each pile. Fill each crater with water. Note how the cement-and-lime mixture absorbs the water immediately. Note how the waterproofed Brixment *holds* it.

FIGURE 2



Prepare two slabs of mortar, one with Brixment and one with ordinary lime-and-cement mortar. After mortars have hardened, seal a lamp chimney to each of the mortar slabs, using wax or candle grease, and fill with water.



After 24 hours, note how much water has gone into and through the non-waterproofed mortar, and how little water has gone into or through the Brixment mortar.

Macomber Did Something About The *Time and Cost* of Erecting Steel Buildings

With V-LOK Steel Framing, an industrial building like this is a real source of pride to the owner, the structural engineer who designed it and the contractor who watched it go together faster than any job he ever erected.

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Before you design or build anything—see what V-LOK will do for you and the owner.

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NAILABLE STEEL JOISTS
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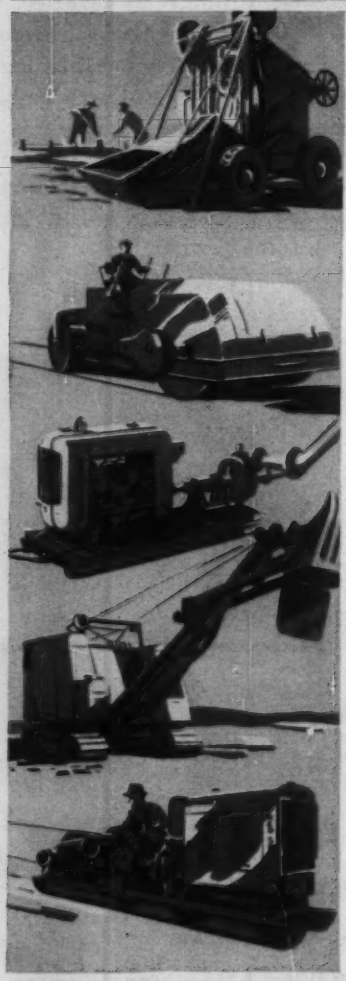
STRUCTURALS

Joy Model 125 portable air compressor, powered by Continental F-226 engine, supplying air for paving breaker.



Speed the Job ...Cut the Cost with DEPENDABLE RED SEAL POWER

Continental Red Seal power is saving money for owners of specialized equipment in all phases of the construction industry. You find Red Seals of varying sizes and specifications (14 to 237 horsepower—for operation on all standard fuels) in more and more leading makes of compressors, mixers, rollers, pumps, shovels, winches, and other machines at the job site. And you find them delivering their full work quota, with a minimum of down time, because each is engineered expressly for its job—built to do one thing and do it well.

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READER COMMENT

toll road system is the most fair and equitable yet proposed.

I present the idea I have outlined above in the hope that some others may see as much merit as I do in a nationwide turnpike network—and if they do that something may get started.

A. E. Cornell,
District Engineer,
Pennsylvania Turnpike Commission,
Lehighton, Pa.

Credit Due

Sir: As a subscriber to your magazine, I read on page 21 of your July 21, 1955 issue your report "Urban Renewal Wins Recruits."

The "pioneer project" in Philadelphia, known as "North Triangle Project No. 1", has been designed by this firm as Architects-Engineers. It has been selected by the Redevelopment Authority of Philadelphia over others submitted and has subsequently been adopted together with the "workable" program.

John H. Graham and Associates
Architects-Engineers
Washington, D. C.

Name Omitted

Sir: We enjoyed reading your brief report (ENR July 28, p. 23) of our inclusion as architects for the new House of Representatives Office Building in Washington. It was a disappointment, however, that by oversight our senior partner, Alfred Easton Poor, was omitted.

Albert Homer Swanke
Office of Alfred Eston Poor
Architects
New York City

CALENDAR

International Association for Hydraulic Research, 6th Plenary meeting, Delft, Netherlands, Aug. 29-Sept. 2.

New York Section, American Water Works Association, annual fall meeting, Saranac Inn, Saranac Inn, N. Y., Sept. 8-9.

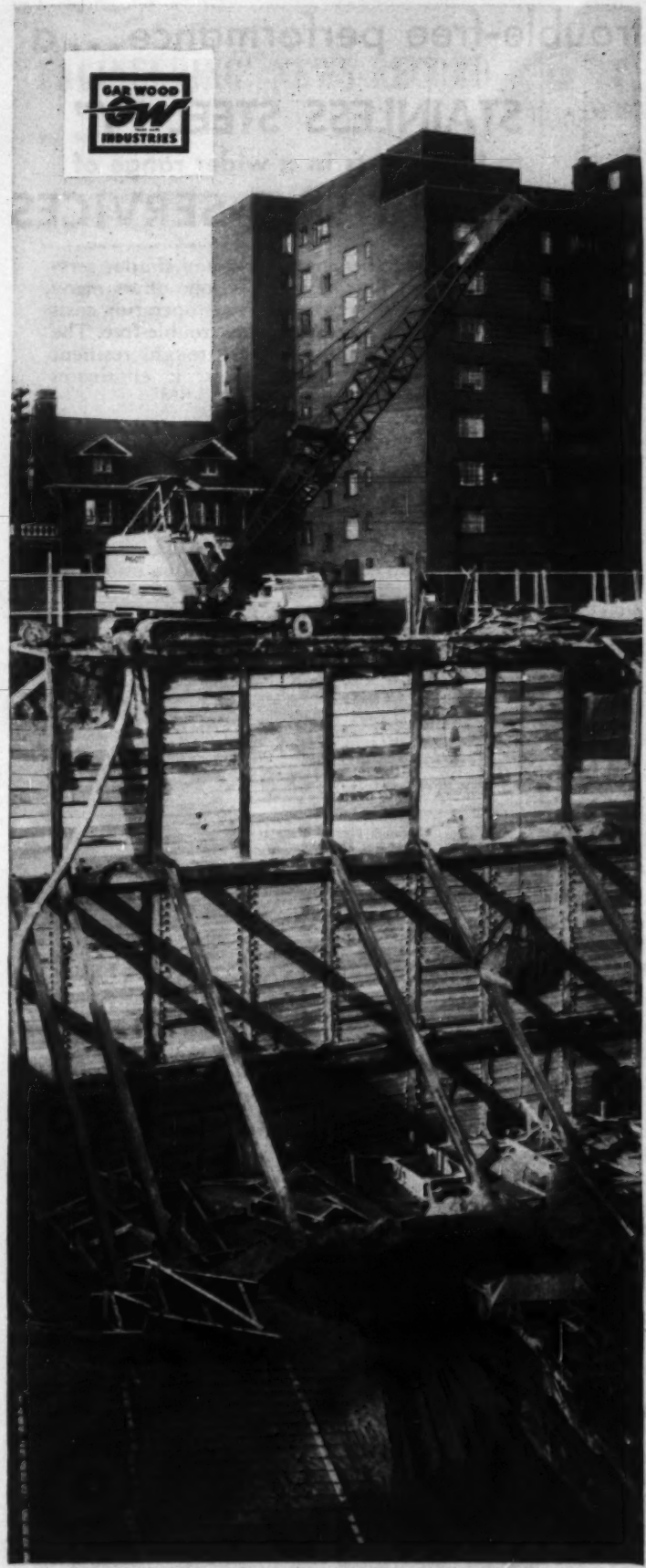
Western Association of State Highway Officials, annual conference, Jackson Lake Lodge, Wyo., Sept. 8-10.

New England Water Works Association, Lake Placid Club, Lake Placid, N. Y., Sept. 18-22.

International Road Congress, Dolmabahce and Yilditz Palaces, Istanbul, Turkey, Sept. 26-Oct. 16.

American Public Works Association, congress and equipment show, Milwaukee, Wis., Oct. 2-5.

Federation of Sewage and Industrial Wastes Associations, Ambassador Hotel, Atlantic City, N. J., Oct. 10-13.



NEW 287 FT. IMPERIAL OIL BUILDING TO BE EMPIRE'S TALLEST

TALLEST BUILDING IN BRITISH EMPIRE

Now under construction in Toronto!

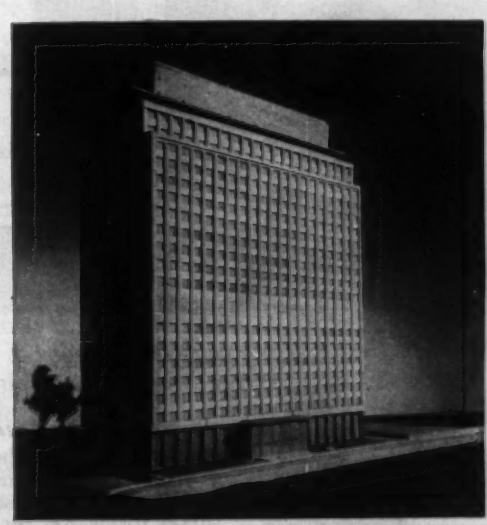
Excavating for the new Imperial Oil Building, now under construction in Toronto, is this Gar Wood crane owned by the general contractors, Pigott Construction Co., Ltd., of Hamilton and Toronto. As one of Canada's leading building contractors, Pigott owns all the equipment required to do their own excavating, pile driving and concrete foundation work.

Founded in 1875, the Pigott organization is now operated by the third generation of the family and is reported to average $35,000,000 of construction annually in the Province of Ontario alone.

The new building, housing the executive offices of Imperial Oil Ltd., will consist of 19 floors and penthouse. It will be slightly higher than the Canadian Bank of Commerce Building, now the British Empire's tallest building.

No. 5316

GAR WOOD INDUSTRIES, INC.
WAYNE, MICHIGAN



IMPERIAL OIL BUILDING in uptown Toronto will cost about $8,000,000. It will measure 245 by 88 ft. on the ground floor and will be 287 ft. high, framed in structural steel and faced with gray limestone.

Jenkins designed for trouble-free performance... a

STAINLESS STEEL "Y"

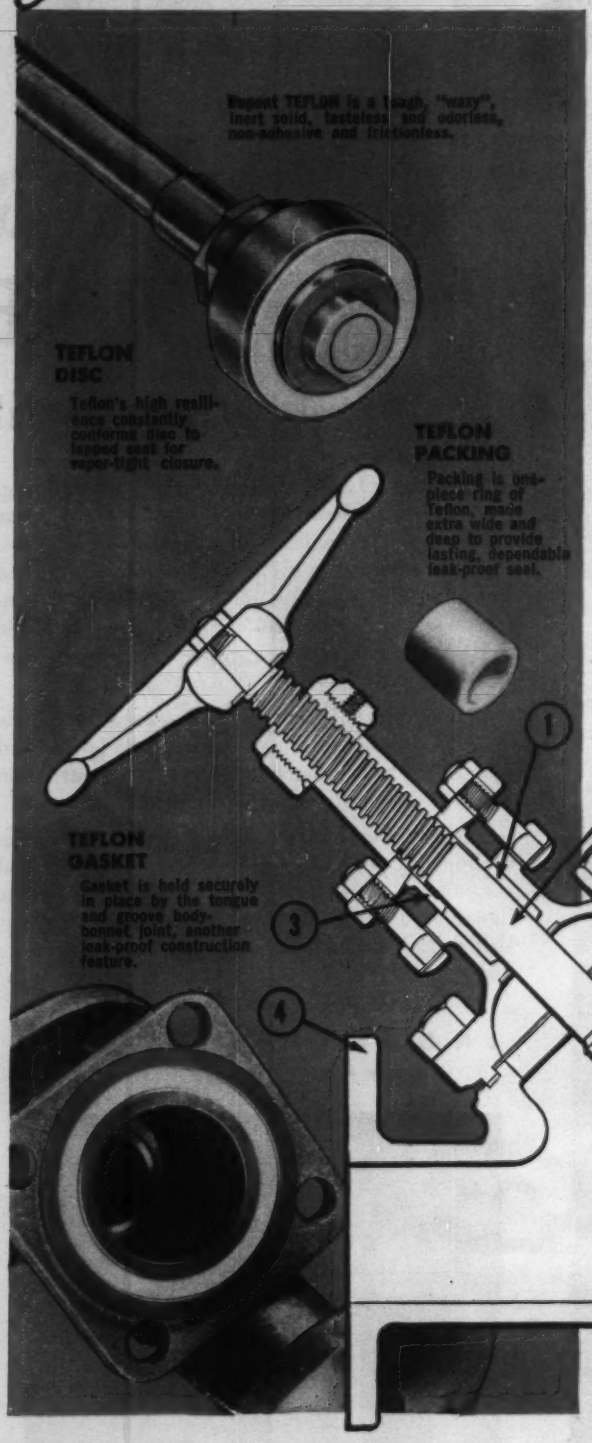
to lower costs in a wider range of

CORROSIVE SERVICES

For food and chemcial plants, and similar services, Jenkins Fig. 1335 "Y" Globe offers many advanced features that will lower operating costs and keep your processing lines trouble-free. The disc, packing, and gasket are tough, resilient Teflon. Tasteless and odorless, it eliminates problems of contamination.

The "Y" pattern permits full flow, nearly equal to that of a gate valve, and also provides the vapor-tight closure and the ease of disc renewal of a globe valve.

Fig. 1335 offers extra value by any test . . . *initial cost, operating efficiency, low maintenance.* You can convert this extra value into *extra savings* on your toughest corrosive services. Call your Jenkins Distributor, or write: Jenkins Bros., 100 Park Ave., New York 17.


Dupont TEFLON is a tough, "waxy", inert solid, tasteless and odorless, non-adhesive and frictionless.
TEFLON DISC
Teflon's high resilience constantly conforms disc to lapped seat for vapor-tight closure.
TEFLON PACKING
Packing is one-piece ring of Teflon, made extra wide and deep to provide lasting, dependable leak-proof seal.
TEFLON GASKET
Gasket is held securely in place by the tongue and groove body-bonnet joint, another leak-proof construction feature.
1
2
3
4

FULL, FREE FLOW through Fig. 1335 is nearly equal to flow through a gate valve.

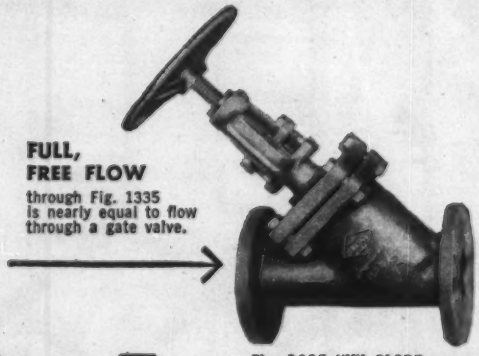


Fig. 1335 "Y" GLOBE
150 lbs. O.W.G. at 500°F
230 lbs. O.W.G. at 100°F
Sizes 1" to 4"

(1) **Packing Box—Exceptionally deep and wide to hold optimum size packing.**

(2) **Spindle—Polished shank, long-operating threads, bevel shoulder for backseating.**

(3) **Gland—Two-piece for equalized pressure, tight seal.**

(4) **Flanges—Conform to M.S.S. Standard Practice S.P.42 Specifications.**

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JENKINS VALVES

LOOK FOR THE JENKINS DIAMOND

TRADE JENKINS MARK

ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

WORST FLOOD SINCE '36—Eight days ago, the Naugatuck River—a fairly large stream, was low and stagnant. Two days later, the river roared over its banks, smashed into Waterbury, Conn., and inundated such smaller Connecticut communities as Seymour, Derby and Ansonia.

On stream after stream in the Northeast, the pattern was repeated as New England, New York, New Jersey and Pennsylvania faced the worst flood since 1936. The great storm came to most areas with little or no warning. It was, said the weather experts, a meteorological freak that occurred when the tail of Hurricane Diane collided with a mass of heavily moisture-laden air that had been blanketing the Northeast. As this mass of air was drawn upward, it cooled and in 24 hours poured an average of 10 in. of rain on an area of 30,000 sq mi.

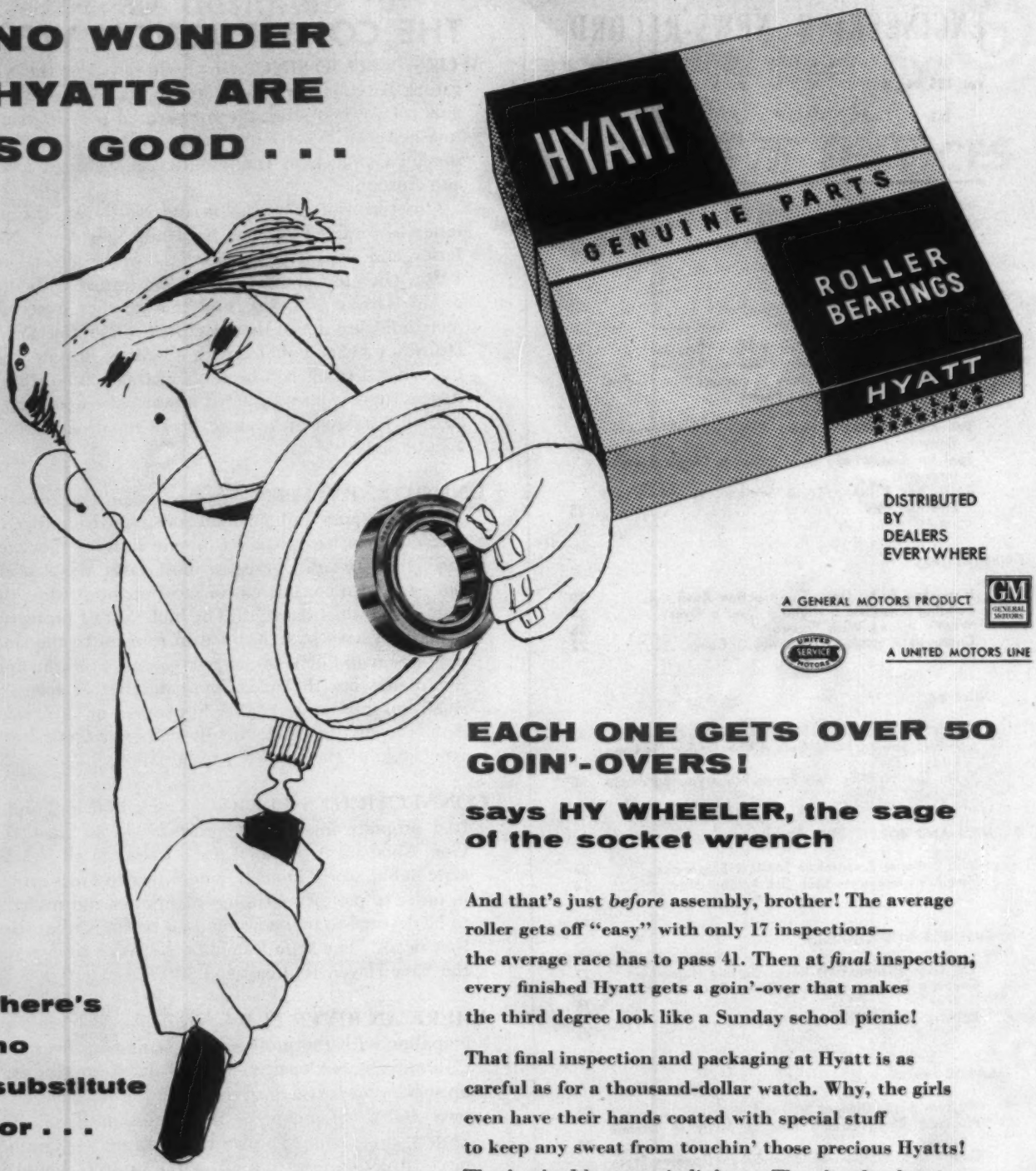
UNUSUAL PATTERN—Greatest damage occurred along tributaries and small streams, which neither nature nor man had prepared for the torrents they were unable to contain. Thus, in most cases, dams would not have been considered for most of the streams that caused the worst damage. The high cost of protection would not have been justified in relation to the small population and little property involved. Still, the flood did underscore the need for a number of relatively small but vital projects already planned or authorized. And, the disaster undoubtedly will spur Congress to vote some of the needed appropriations.

CONNECTICUT'S PLIGHT—Residential and industrial property loss in Connecticut was so great that Gov. Abraham A. Ribicoff put a freeze on all planned state public works projects, amounting to $34.1 million in order to permit maximum manpower and materials to be devoted to homeowners' and business reconstruction needs. The state lost some 28 major bridges and the New Haven Railroad had 30 bridges out.

AMERICAN RIVER PLAN—While the Northeast was grappling with the problem of overflowing rivers, the California State Department of Water Resources came up with some broad answers to a water problem of its own—full development of the American River. The State agency outlined a plan that calls for $418 million in construction. But not all of the projects would be built by the state. Municipalities and private enterprise would have an opportunity to undertake part of the development.

POWER FOR MEMPHIS—In the heart of TVA land, Memphis, Tenn., this week wrote another chapter in a stormy federal-city controversy. The city council retained Burns and Roe of New York as consulting engineers to design a $100-million power plant that would take the place of the now-abandoned Dixon-Yates facility at West Memphis, Ark.

NO WONDER HYATTS ARE SO GOOD . . .



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says HY WHEELER, the sage of the socket wrench

And that's just *before* assembly, brother! The average roller gets off "easy" with only 17 inspections—the average race has to pass 41. Then at *final* inspection, every finished Hyatt gets a goin'-over that makes the third degree look like a Sunday school picnic!

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HYATT ROLLER BEARINGS

STRAIGHT BARREL TAPER

HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION • HARRISON, NEW JERSEY

WASHINGTON OBSERVER

Over $5 billion will be spent on construction by Washington this year. This includes outlays for military construction, for the Atomic Energy Commission, for hospitals, highways, and so forth.

New appropriations voted by Congress add up to $4.2 billion. The rest will come out of funds appropriated in previous years. For example, the military has more than $2.7 billion in so-called carryover funds.

A budget review this week will give a general breakdown of spending for the fiscal year—1956—that began on July 1. Secretary of the Treasury George Humphrey and Budget Director Roland Hughes wrap up the year's spending plans—with outgo and tax income about equal. Out of this review comes the spending schedules for the various government agencies and program.

Look for an answer in this review for specific ceilings on military public works, new Bureau of Reclamation and Corps of Engineer projects, and the like. It is important, because such a policy will give what the Administration intends to do, as against what Congress voted the money for it to do.

This is sure: Military construction will top $2.5 billion. That figure is the Administration's estimate. Contract letting may not be as fast as previously figured, but enough new work will start to reach more than that total.

Reclamation Bureau is going ahead with starting funds already approved, to begin work on $350 million worth of new starts.

The Corps of Engineers is expected to get similar approval on the first of its 97 new flood control and navigation projects approved by Congress. For example, Tuttle Creek Dam in Kansas has been apportioned funds.

Atomic Energy Commission has funds for some $300-million of new plant that it hasn't committed yet, but will obligate this year.

Hospital grants-in-aid will start some $200-million of projects when local matching funds are added to the federal money.

•

For the future, the White House itself will take a bigger hand in public works planning and spending. General John S. Bragdon, who is now operating as a special assistant to the President, will in effect be Eisenhower's own adviser on and coordinator of public works. Bragdon started out last year in the Council of Economic Advisers—working up special information on the status of the "shelf of public works plans," mainly of state and local agencies.

But Eisenhower wanted a public works coordinator in the White House—someone who could keep tabs for him on the ways in which public works spending could be increased to boost business or ease off when business stimulants aren't needed. Also, the job would be to keep tabs on meeting public works needs in time—things required by the steady growth of the country.

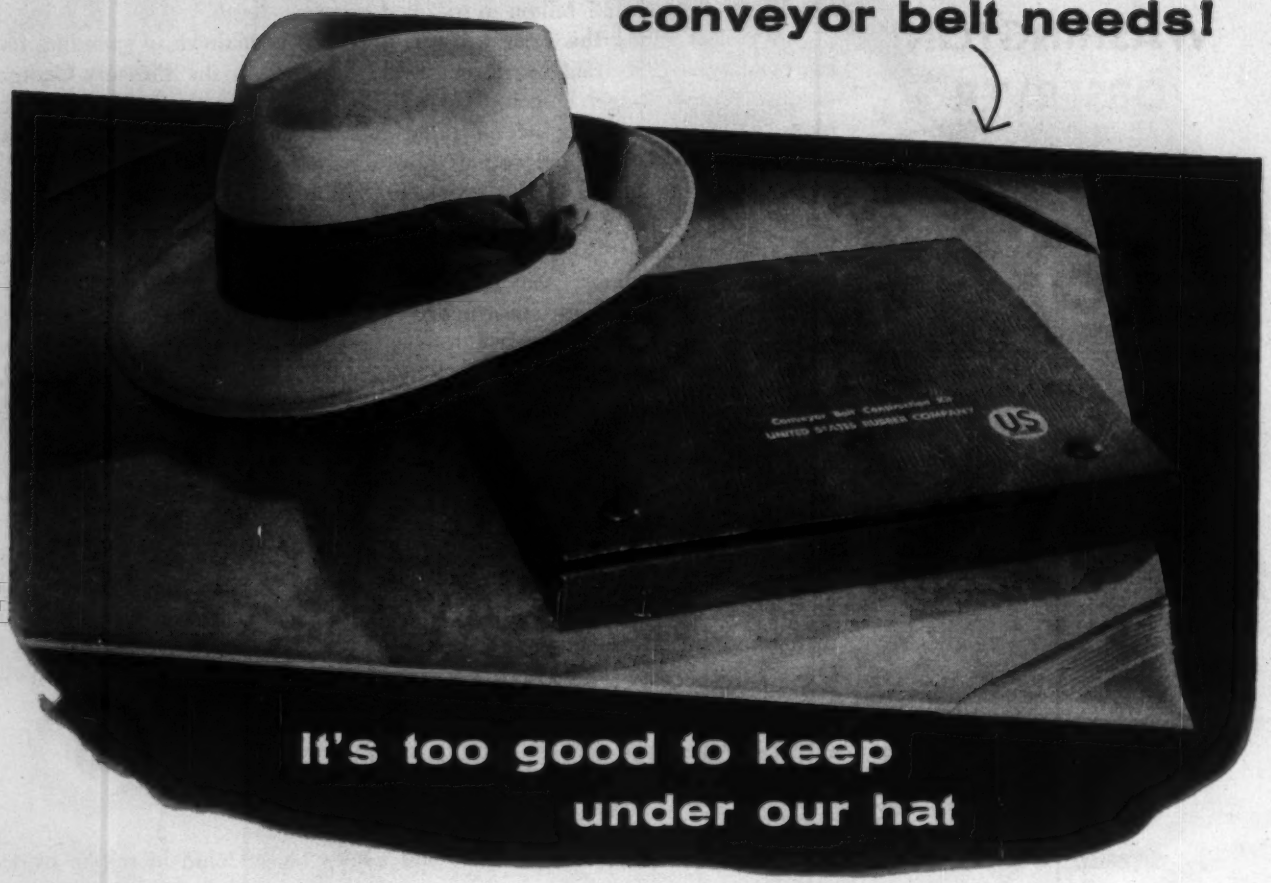
•

Bragdon is an old Army friend of Eisenhower's, a classmate of his at West Point. He's the kind of man the President likes to have around when he has to decide between conflicting reports and recommendations of the half dozen big public works agencies in Washington.

Bragdon will have a say on the Hoover Commission recommendations which would, if adopted, cut back and change the government's public works programs drastically.

Bragdon will have experts to help him out—assistants who will specialize in federal works, another on state and local projects.

In this kit is the answer to all your conveyor belt needs!



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Now, for the first time, you can see in miniature a conveyor belt designed to your exact specifications... built right before your eyes... in only a few minutes of your time, on just a few inches of desk space. And this "U.S." Conveyor Belt Construction Kit can save your company countless hours, thousands of dollars of expense.

Completely new and exclusive with "U. S.", the Kit removes all uncertainty about the right belt for the specific job. Every type of materials handling problem, every kind of operating condition is taken into account. You see exactly how your conveyor belt must be constructed for highest output at lowest cost and long operating life.

Whether or not your present system has been giving you good service, you owe it to yourself to look into this unique and comprehensive analysis of your conveyor belt needs.

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Tributary Flash Floods Create Major Disaster

Connecticut, Massachusetts and Pennsylvania bear brunt of storm as rampaging streams cause heavy structural damage, take toll of bridges, cut roads, create health hazards

A meteorological freak dumped a tropical rainstorm into the unprepared valleys of a number of streams in the northeastern U.S. last week, causing as much damage and loss of life in 48 hours as most major flood disasters have chalked up in a week.

The death toll reached 185 and property damage will reach several hundred million dollars. As a comparison, in the great New England flood of 1936, 171 persons lost their lives and property damage totaled a half-billion dollars, while the so-called New England hurricane of 1938 claimed 500 lives and caused properly damage of a quarter-billion dollars.

The storm occurred, according to U.S. Weather Bureau officials, when the heavily-moisture-laden air currents of Hurricane Diane collided with the hot humid air that already blanketed the northeastern states. The hot air rose, cooled, and released its moisture, following a pattern common in tropical climates. A tropical rainstorm resulted, pouring more water on ground already saturated by rains of the previous week.

Hartford, Conn., recorded 12.12 in. of rain in 24 hours and 14.38 in. for the 54-hour duration of the storm. Boston had 11.91 in. in 33 hours and in about the same period of time, Holyoke, Mass., suffered a 14.67 in. downpour. The storm total for Worcester, Mass., was 11.19 in.

So-called cloudbursts have caused greater precipitation than this over small areas, but seldom has an area of nearly 30,000 sq mi been subjected to an average rainfall of nearly 10 in. in 24 hours.

• **Tributaries most affected**—The big river valleys affected were those of the Connecticut and Delaware Rivers, but it was on the small tributaries of these rivers and the independent Naugatuck River in Connecticut that the principal devastation occurred.

Some of the tributaries of the Hudson, which lies between the Delaware and the Connecticut, were also part of the pattern of flash floods in watercourses unable to contain them and also steep enough to build up destructive currents. The Connecticut River, at Hartford, crested at 31.5 ft or about 6 ft below the 1936 flood. At Easton, Pa., the Delaware crested at 40 ft, smashing a 52-year old record of 38.1 ft. The crest was 16 ft above flood level.

Two types of "little river" valleys were involved. In one type, a sparse, permanent population was swelled by vacationers and summer camp inhabitants, and much of the loss of life occurred there, one camp in Stroudsburg, Pa., accounting for at least 30 dead.

The other type valley was built-up industrially. This type accounted for the bulk of the property damage. In addition to homes and factories, bridges, highways and railroads washed out to swell the total dollar losses.

Among the medium-size towns where losses were severe were Stroudsburg, Easton and Allentown, in Pennsylvania; Torrington, and Waterbury in Connecticut; Springfield and Holyoke, in Massachusetts; and Woonsocket in Rhode Island.

But several smaller towns and villages suffered greater total destruction, such as Branchville, N.J., which was almost completely destroyed when a small dam washed out.

Other places hit hard were Naugatuck, Danbury, Ansonia and Windsor Locks in Connecticut. Putnam, Conn., lived through a nightmare when barreled magnesium, flooded out of a factory, floated on the water, exploding and setting fires.

• **Army Engineers and Civil Defense**—Two federal agencies—the Federal Civil Defense Administration and the Army Engineers—played major roles.

The Corps of Engineers headquarters dispatched 51 field parties to critical points to devise and supervise emergency construction tasks. These missions included repairing breaks in dams and levees, bolstering damaged bridges, installing temporary bridges and installing and operating emergency generators, pumps and mobile drinking water systems. In Scranton, Pa., for example, the entire city water supply was being provided by the Army Engineers' mobile field units. And, at Fort Bragg, N.C., the 87th Engineer Construction Battalion was placed on alert so that the 700 men and officers—and their equipment—could be airlifted to a critical area.

Civil defense officials took advantage of disaster plans to cope with the flood relief requirements. One mainstay was the use of engineering stockpiles, as they are called.

These stockpiles consist of from one to three units. Each unit includes 10 mi of 8-in. lightweight steel pipe in 20-ft sections with couplings, fittings and valves; tool kits, speed wrenches, five 1500-gpm mobile, gasoline-driven pumps; two 100-gpm water purifiers; four 3,000 gal collapsible water storage tanks of rubber-coated vinyl plastics; two auxiliary 100 gpm gas-driven pumps to be used with the storage tanks; one mobile chlorinator, capable of placing 300 lbs of chlorine in 24 hours; eight mobile gasoline-driven generators of various capacities; and other materials.

FCDA used 11 of these stockpiles

Hurricane Study

Army Engineers at a meeting in Washington last week laid initial plans for the hurricane survey for which Congress has appropriated $1 million (see editorial on page 96).

Effort will be concentrated on "finding solutions for the hurricane problem, if there are solutions," said Brig. Gen. Emerson C. Dtschner, Assistant Chief of Engineers for Civil Works. "The only solution for many areas may be a modification of building codes, or local action to restrict building in certain areas," he added.

Funds transferred to the Weather Bureau will finance Part 1 of the Congressional order—to obtain data on the "behavior and frequency of hurricanes" and to determine "methods of forecasting their paths and improving warning services." The Corps of Engineers will study "possible means of preventing loss of human lives and damage to property."

The study may take as long as three years to produce any answers and may cost as much as $3 million.

. . . Flash Floods Create Disaster

in the New England-New York-New Jersey area and two stockpiles in Pennsylvania.

• **Small dams fail**—As in the New England flood of 1936, failures of small dams contributed to the death toll and property damage figures. In Connecticut, small dams failed at Sturbridge, Oxford, South Charleston, Waterbury, Naugatuck, and Torrington. In Massachusetts, failures were reported at Wright City, West Springfield, Sturbridge, Harris Pond, Hopedale and Worcester.

Bridges were frequent flood casualties, particularly in Connecticut. The state reported the loss of 28 major bridges alone. And, the New York, New Haven and Hartford Railroad suffered a loss of 30 railroad bridges and four trestles.

Major highway bridges also were knocked out at Easton and Yardley, Pa. The Pennsylvania State Highway Department estimated damages to roads and bridges at more than $10 million. New Jersey's early estimate was about $1.5 million.

These losses were dramatic. But Army Engineers noted with pride that performances of their flood control projects in New England had averted an even greater disaster. The nine dams built by the Army Engineers in New England have held and the dikes and flood walls have done a better job than even the Engineers had expected. The one disturbing factor is the height of the flood waters at Springfield, Mass., where the Westfield River flows into the Connecticut. Here the water came within one foot of going over the walls. But Congress has a proposal now for a reservoir called Littleville, near the joining of the Connecticut and Westfield Rivers, which would solve this problem.

• **New pressure for flood control**—The waters had scarcely begun to recede when residents of the stricken areas turned to state officials and Congressmen with new demands for additional flood control projects. This pressure seemed certain to bring Congressional appropriations for a large number of projects previously authorized.

It was agreed by Army Engineers that additional flood control projects would have prevented some of the loss of life and reduced property damage. But additional projects would not have been the complete answer.

Engineers said that the high cost of complete protection at some places could not be justified because of small population, small property values.

Equally important, engineers said, was that dams would not have been considered for practically-unknown brooks that swept over their banks and wrought havoc. Some of these streams at this time of year are identified only by a dried-up bed. Even the Naugatuck River, a fairly large stream, was low and stagnant just the day before the storm broke.

The problem here is encroachment of factories and other facilities into the normal flood plain of the streams—and this is a problem that must be met by local zoning and state laws.

Damage varied markedly from state to state, and in some cases, from city to city. Here are on-the-scene reports from the major disaster areas:

Connecticut

The Nutmeg State was believed to be the hardest hit of the six states involved in the flood. Tentative estimates of damage ran into hundreds of millions of dollars.

Governor Ribicoff of Connecticut ordered an immediate freeze on all planned state construction in order to free men and materials for the rebuilding of homes and industrial plants. The stop order affects some $34.1 million in state work now on the planning boards.

State Highway Commissioner Newman E. Hargraves, releasing early figures on the damage, reported that 33 bridges had been destroyed, 12 state highways blocked by landslides and 30 state roads washed out.

Hargraves said damage to highways and bridges will total several million dollars. Thirty contractors, with heavy equipment, were placed on standby orders to go to work when the highway department gave the signal. Six Bailey bridges from the Army Engineers were brought into the state to connect main routes to principal municipalities where bridges were destroyed. And six more Baileys were on the way from Army Engineers' supply depots.

Winsted, with its industrial and commercial areas built along the Mad River, was smashed from one end of the town to the other. Some estimates were that 95% of the city's industrial capacity had been destroyed.

Putnam, on the Quinebaug and French Rivers, lost three major plants because of fires caused by the floods. Sanitation facilities were severely damaged and the town had no safe drinking water.

In Waterbury, the Chase Brass and American Brass companies were swept by water and the Connecticut Light and Power Co. plant was swamped. Freight yards in the city suffered heavy damage, sanitary facilities were disrupted and the water system was polluted.

Naugatuck's industrial area suffered heavy losses, its Memorial Bridge was wrecked and many homes were lost.

Torrington, Seymour, Darby and Ansonia, also on the Naugatuck River, were inundated. There was 20 ft of water in Torrington's main street.

A housing problem has developed in almost every Connecticut city affected by the flood.

The Connecticut River at Hartford crested at 30.6 ft. But this was below the 37.5 ft record of 1936. Since then, a $4-million dike system has been built to retain a crest of 45 ft. This saved Hartford from inundation of the business center. Park River, running the length of the town, has been contained in a conduit through the center of the city, also another saving factor for the business center. But elsewhere in the city, the river caused heavy damage to homes and industry.

One result of the flood in Connecticut is that dams, built and owned by mills along the various rivers, will be given a thorough inspection. Many probably will have to be overhauled. Some may be removed, particularly if the factory they were built to serve no longer exists. Several of these mill dams, built in the 1880's, failed and added to the havoc.

Pennsylvania

Tentative estimates from the Pennsylvania State Highway Department reported $10-million damage on state highways and bridges in northeastern Pennsylvania. Heaviest damage was in Monroe County where the deck of the bridge carrying Route 209 from Stroudsburg to East Stroudsburg was washed away. Throughout Monroe County, 30 other smaller bridges were damaged or washed out.

In nearly all cases, the dams, reservoirs and dikes held up and other flood control facilities did their jobs well. The Pocono Dam was smashed and the recently-repaired Darby Dikes near Philadelphia gave way in a few places. But on the whole the present flood control projects in both Pennsylvania and New Jersey did a "magnificent job", said engineers.

This performance has added to the demands for more flood control projects, the engineers said. U.S. Army Engineers have authorization to build reservoirs at Bear Creek, White Haven, and along the Lehigh River in the Allentown-Bethlehem area. But Congress has not yet appropriated the money.

The state would gain further flood protection from three dams authorized for the northeastern sector of the state. These dams are scheduled to be built on the Lackawanna River, the Lackawaxen River, and at Prompton, near Honesdale, Pa.

Massachusetts

The rampaging Quinebaug River battered Putnam, Sturbridge and Southbridge, Mass., and Worcester took a beating from the Blackstone River.

Boston was an isolated city for 12 hours, with railroad and highways disrupted. In fact, no trains entered or left the city for 24 hours. Travel from the suburbs to Boston proper was a process of fording one "lake" after another and all major roads were impassable at one time or another.

Engineers said that the millions of dollars of damage suffered by Putnam, Sturbridge and Southbridge could have been averted if reservoirs had been built on the Quinebaug at East Brimfield. Three reservoirs have been proposed at this site.

And, Worcester would have been spared, according to engineers, if a Blackstone River diversion project had been carried out. This project was first proposed after the 1938 floods.

One problem in building flood control projects in the state is that local opposition is often powerful, engineers commented. In Thomaston, bordering on the Naugatuck Basin, a dam has been proposed for many years but townspeople opposed the project because it would mean relocation of the New Haven Railroad tracks, possibly putting Thomaston on a siding. However, some of this opposition may disappear in the wake of the flood.

While the existing flood control projects proved their worth, engineers feel that 15 more dams are needed in New England to afford adequate protection. One Engineer official, summing it up, said: "Just as sure as I'm standing here, there will be another disasterous flood on the Connecticut River—soon."

Memphis Hires Engineers For Power Plant Project

Burns & Roe, Inc., New York City, has been hired as consulting engineers for construction of Memphis' $100-million municipal power plant which will take the place of the now-abandoned Dixon-Yates private power plant across the river in West Memphis, Ark.

The engineering firm will receive as its fee slightly less than 3% of the total cost of construction.

According to the city's utility division, the preliminary study should not take more than a few months to complete, and actual construction is expected to get under way by next January 1.

Connie Damages Patapsco Tunnel Project

Hurricane Connie—third tropical storm of the season—caused an unoffically estimated damage of $100,000 and possible delays in construction of a part of the Baltimore Harbor Tunnel under the Patapsco River.

Driven by high winds, tides running up to 6 ft higher than normal broke through rain-softened ground to reach a 55-ft-deep excavation being prepared for the tunnel ventilation structure on the south side of the harbor, flooded the excavation and engulfed construction machinery.

The flooded excavation was roughly 200 ft wide by 300 ft long, and 55 ft deep. It will be the site of an approximately 80 x 60 ft main ventilation shaft for the tunnel, at a point where a transition is to be made between the prefabricated steel tubes of which the underwater section of the tunnel is to be built and a cut-and-cover section leading up to normal ground level.

At the point of flooding, the excavation is about 300 ft inland from normal waterfront areas. Edward V. Jones, resident engineer for Singstadt & Baillie, consulting engineers on the tunnel, said pressure from abnormally high tides apparently broke through weak ground underlying an old shipway foundation fronting on the harbor. Continuing flow of the wind-driven water caused cave-ins that eventually created a connecting channel to the main harbor about 8 ft below surrounding ground level.

Merritt-Chapman & Scott, prime contractors, and Raymond Concrete Pile Co., subcontractors, on the $36-million main tunnel section, were unable to move all their equipment out of the excavation. Two cranes and a pile driver were submerged.

To correct the damage, contractors are now placing new fill along a 40-ft section between the excavation and the harbor. Inside this fill, steel sheet-piling will be driven, and the area dewatered through four 3,000 gpm pumps used originally to dewater the excavation through a series of deep wells. Once the area is dry, unfilled shells for concrete piles will have to be cleaned out and the excavation readied for further work.

Novel Roof Fails

Investigation under way of rigid-frame design with prestressed beams

A 4,800-sq ft roof section of a new one-story warehouse of composite reinforced concrete and prestressed concrete construction collapsed suddenly Aug. 17 at the Wilkins Air Force Station, Shelby, Ohio. The roof was carrying no loads other than its own weight at the time.

The collapse appears to have resulted from failure of a reinforced concrete rigid frame of 67-ft span. Three more bents were toppled, pulled down by the prestressed block beams attached to the frame that failed. The Corps of Engineers is investigating for the Air Force.

The rigid frames were continuous in the 400-ft direction.

The design was a modification of a standardized design calling for reinforced concrete beams monolithic with the rigid frames and supporting precast concrete roof slabs. Instead of the standardized design, which had been developed for the Corps of Engineers by L. P. Kooken & Co., Baltimore, a variation proposed by the general contractor, Geo. W. Lathrop & Sons, Inc., Toledo, Ohio, was adopted to cut costs.

In the alternate design, continuous prestressed joists on 33-ft spans and a cast-in-place gypsum roof slab replaced the reinforced concrete beams and precast concrete slabs. The joists were composed of 8x8½-in. by 17⅝-in.-deep machine-made concrete blocks tied together with tensioned bridge strands (ENR April 22, 1954, p. 32). When erected, the prestressed joists were seated in slots in the forms for the girders of the rigid frames. To make the joists continuous, reinforcing steel for negative moment was placed across the girders, with ends resting in troughs atop the joists. Then, concrete was placed in the girder forms and troughs in one operation.

The contractor calls attention to the fact that the collapse occurred in one of the first sections of the building to be erected and that specifications for the rigid frames were changed twice since. Each time more reinforcing steel was added to the girders.

H. B. Zackrison, Office of the Chief of Engineers, replies that the changes were made to give the girders greater resistance to foundation deflections and omission of the added steel was not likely to have been responsible for the failure.

American River Basin Study

California plan calls for $418 million in construction; development would include 22 reservoirs, 19 hydro plants

A plan to achieve full utilization of the waters of the American River Basin by a series of projects that would cost an estimated total of $418 million has been developed by California's Division of Water Resources.

The new works would be in addition to the Folsom and Nimbus projects already nearing completion. (The $65-million Folsom Dam east of Sacramento is an Army Engineer project and Nimbus Dam, seven miles downstream, is under Bureau of Reclamation supervision.)

Twenty-two reservoirs are proposed for storing and regulating the runoff of the basin for discharge through nearly 300 mi of conduits to mountain and foothill service areas to 19 hydroelectric power plants.

The water would be distributed on the Sacramento Valley floor by 150 mi of main canals.

The plan contemplates eventual conjunctive operation of surface reservoirs with underground storage in the alluvium of the Central Valley. More than 10,500,000 acre-ft of storage space would be utilized immediately, including nearly 7,500,000 acre-ft of natural underground storage.

This co-ordination of surface and underground storage reservoirs would result in conservation of about 83% of the runoff of the American River Basin as compared with 37% under present conditions with the Folsom Reservoir in operation.

• **Would expand power**—The hydroelectric power plants of the basin would have an installed capacity of nearly 768,000 kw under the plan. Present installed capacity is about 202,000 kw, including the Folsom and Nimbus power plants.

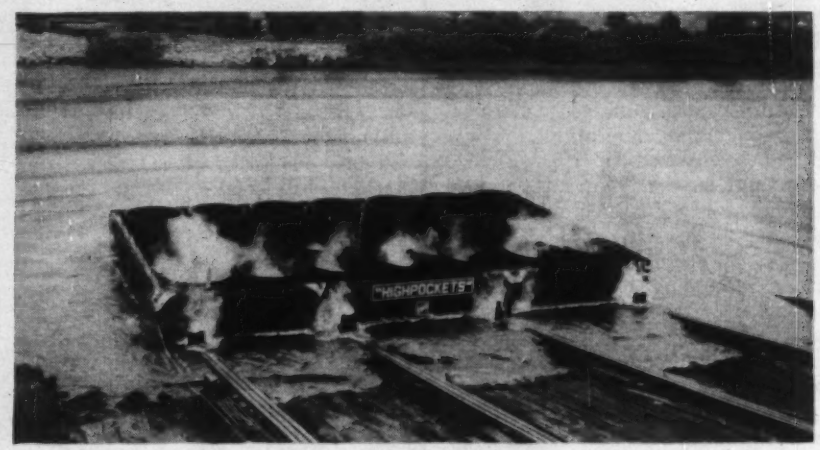
The plan would improve stream flow on the upper reach of the north fork of the American River in the interests of wildlife and recreation.

Cities and farms in the natural valley floor service area of the American River now get only minor beneficial use of the water, according to the report. With Folsom Reservoir complete, there will be enough water to irrigate about 400,000 acres, with some water available for urban use.

With full basin development, the river would irrigate nearly 800,000 acres of land in the uplands and on the valley floor, meet domestic, urban and industrial water requirements for a population in excess of 1,400,000, maintain a flow of about 600 cfs in the American River below Nimbus Dam, provide a firm seasonal supply of 368,000 acre-ft of water for export to deficient areas and provide the river's proportionate share of water required to repulse sea water intrusion in the Sacramento Delta.

• **Some feasible now**—Nine separate basin projects are described. These range from single reservoirs to complex multi-purpose projects containing as many as 29 major features. A number of the projects are feasible now, according to the report.

The report, prepared under the direction of State Engineer A. D. Edmonston, reflects the official views of the state's Division of Water Resources, and is intended to serve as a guide for development of the American River Basin within the framework of the California Water Plan. It is advisory and available for use of any agency—public or private—considering projects on the river. The state does not want to build all the projects itself. One proposal on the middle fork of the river, for example, calls for power development only. This might be developed by the Pacific Gas & Electric Co.



Highpockets for Highpockets

Now on the first leg of a 1,800 mile water journey to New Orleans is this 500-ton steel caisson that will form the foundation for a new bridge across the Mississippi River (ENR June 16, p. 49).

In launching the 151x87 ft caisson at its Neville Island (Pittsburgh) plant, the Dravo Corporation took the opportunity to honor its retired senior vice president, J. Smith Miller (at right) who carried the name "Highpockets" through more than 40 years of pioneering in bridge and under-water construction. Painted in three-foot-high letters on the caisson, the nickname is a fond recognition of a man who pioneered such innovations as use of cellular steel sheet-pile cofferdams; full revolving cranes on water-borne equipment; and the horizontal shipways built at Newport News during World War II.

His name has also been associated with construction of the San Francisco-Oakland Bay Bridge and more than 40 other major bridges throughout the United States.

The big caisson, with its 28 18-ft dia. dredging wells, will become the foundation for the river pier of New Orleans' new bridge, after it has been sunk to a depth of 180 ft below water level. Dravo holds pier foundation contracts for $65-million structure.

Planning Loans

Preliminary plans main goal of federal aid for wide range of projects

Federal government loans for advance planning of non-federal public works will be granted almost exclusively for preparation of preliminary rather than working plans.

This was made clear last week by the Housing & Home Finance Agency's Community Facilities Administration, which will administer the federal government's liberalized loan policy (ENR Aug. 18, p. 21). Congress, under the new housing law, provided for build up of a $48 million revolving fund over the next three years.

Although the law itself does not limit the type of planning for which loans can be made, the CFA considers advances for preliminary plans to be more feasible unless special circumstances indicate otherwise. CFA Commissioner John O. Hazeltine points out that detailed plans and specifications often become obsolete by the time a project is actually authorized for construction. Contract drawings and specifications can be completed rapidly, he observes, when time-consuming basic planning has been done in advance.

"The problem in planning facing most cities is that no local funds may be expended until the project is legally approved and funds authorized for its construction. Federal advances for preliminary planning will enable cities, especially the many hundreds which have expanding residential and industrial developments, to bridge the gap between planning and eventual authorization of funds," Hazeltine explains.

Federal planning advances are non-interest-bearing and do not constitute an obligation on the part of the municipal or state government or regional agency until the project has been authorized.

By authorizing a revolving fund, Congress has put planning assistance on a more flexible basis. For example, a community may now apply for a planning loan for the initial project in a comprehensive scheme of public improvements and later ask for advances for additional units. It is not necessary to apply for planning of a total development.

CFA now has on hand qualification statements from municipalities requesting $554,245 to cover cost of preliminary plans for 38 construction projects to cost an estimated $53.5 million. These projects cover a wide range of municipal needs, with sewer and water facilities in the lead. Others include schools, streets, a bridge, park, civic auditorium, quay wall, port development, harbor and flood protection works.

Other types of projects also eligible for preliminary planning loans would be hospital and health facilities; public buildings such as court houses, city halls, police and fire stations; viaducts and grade separations; and airports.

Detailed information on the program may be obtained from any of the HHFA's regional administrators located in New York, Philadelphia, Atlanta, Chicago, Fort Worth and San Francisco.

Union Carbide Changes Mind, Plans New York Skyscraper

During the post-war office building boom, corporations began a march to the suburbs. Two years ago, the trend began to slow down. And, last week, Union Carbide and Carbon Corp. announced a decision that may mark the turning point in the commercial tug-of-war between the cities and their satellites.

Union Carbide, which owns a large tract of land in suburban Westchester County, N. Y., abandoned tentative plans to build a headquarters building there. Instead, the firm will build a $40-million 41-story skyscraper in Manhattan to house office staffs now scattered throughout four New York City office buildings.

The new building will occupy the block from Park to Madison Avenue, from 47th to 48th St., on the site of the former Marguery Hotel, which was converted into an office building in 1948.

Preliminary plans for the skyscraper have been drawn by Skidmore, Owings and Merrill, New York architects.

Stainless Steel Skyscraper To Rise in Chicago's Loop

Chicago's first skyscraper to feature a stainless steel exterior--and the Loop's first major new structure in more than 20 years--is scheduled to be under construction by October.

The 19-story skyscraper will serve as the new headquarters office building for Inland Steel Co. The contract for demolition of buildings now on the Dearborn and Monroe Sts. site will be awarded within a week. The actual job of clearing the site will begin early in September.

Skidmore, Owings & Merrill, architects for the project, report that the building will have the widest clear span ever designated for a multi-story structure. Elevators will rise in a separate service shaft to free the main office tower of obstructions.

Toll Road Caution

Engineer group approves Tacoma - Everett project, but with reservations

A proposed $227-million toll road through Seattle from Tacoma to Everett, Wash. (ENR March 24, p. 26), has won support from the powerful Puget Sound Engineering Council, which represents 4,600 engineers in the area.

But in a report favoring the 55-mi project, the council urges a construction plan that emphasizes low cost--rather than speed of completion.

The project, planned by the Washington Toll Bridge Authority, would be the first to collect tolls for intercity traffic. It would include a 2-deck bridge across an arm of Lake Union, as well as numerous traffic interchanges.

At present the authority is awaiting a court ruling on constitutionality of an enabling act passed by the state legislature earlier this year.

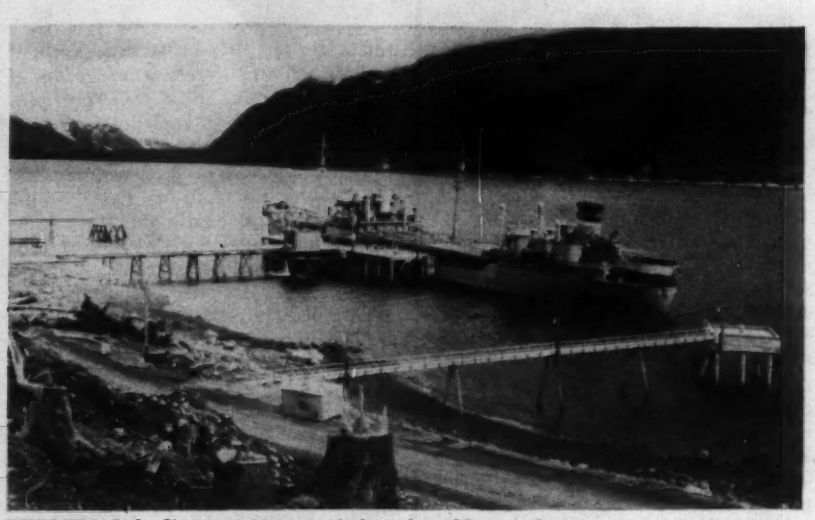
The Engineering Council believes that right-of-way acquisition will be slower and more difficult than now is generally anticipated. It doubts that all necessary land can be acquired within a 12-month period, as the authority hopes. Therefore, it suggests adoption of a program that is flexible enough to allow work to be initiated at intervals as the right-of-way becomes available.

There has been some criticism of the toll road's route, which would take traffic to within several blocks of Seattle's central business district. The council commends Greiner-Tudor Co., consulting engineers, for not attempting to modify or change the location previously determined by the State Department of Highways.

The council's report recommends however, that the project be reviewed with the objective of cutting down on necessary capital outlay. One suggestion is that the number of lanes and overall right-of-way be reduced. Present plans call for as many as 10 lanes on portions of the route. But the council believes that the number of lanes beyond four should be justified economically as being the number that will retire indebtedness the quickest.

The council questions the wisdom of present plans that call for issuance of 40-year bonds. It advises that pay-off period in excess of 25 years for bond retirement should be very cautiously considered. It also would avoid recourse to a $5-million annual guarantee from the State Motor Vehicle Fund that the 1955 legislature authorized.

SNAKING ACROSS undulating Alaskan terrain, new petroleum pipeline follows route of Alcan Highway.



TERMINAL for line is at Haines, Alaska, where Navy tankers can tie up in deep water. Five pumping stations—three near Haines, one on the DonJek River near Mile Post 1124, and one at Tok Junction—send the fuel on its way.

MANY TYPES of construction are needed in the varying terrain. Here the line crosses a swift tributary of Kluane Lake in Canada's Yukon Territory. The wood H-frames are driven to 55 ft penetration. Contractors utilized winter freeze-up to cross stream.

Fuel for Alaska

Designed to supply petroleum products to military installations in the Alaskan interior, Army Engineers are rushing construction on a 626-mi pipeline stretching from Haines, on the seacoast, to Tok Junction, far inland.

Built by a joint venture of Williams Brothers, Tulsa; McLaughlin Construction Co., Great Falls; and Marwell Construction Co., Vancouver, putting down and welding of the 8-in. seamless steel line pipe has been completed, and work is now going ahead on three major pumping and distribution stations. Completion is scheduled for early October.

At peak of pipeline construction, 775 men were employed on two spreads and other work—the spreads averaging about 73,000 ft each, encompassing more than 1,800 joints of pipe per week.

Total cost is estimated at more than $40 million. The pipeline can deliver 12,000 bbl of fuel or petroleum products each 24 hour day.

CONSTRUCTION HAZARD was local flooding and melting of underlying permafrost ground, which quickly turned into quagmire that could trap wheeled equipment. Where possible, permafrost was cleared or covered after ditcher-backhoe-clamshell excavating team constructed trench.

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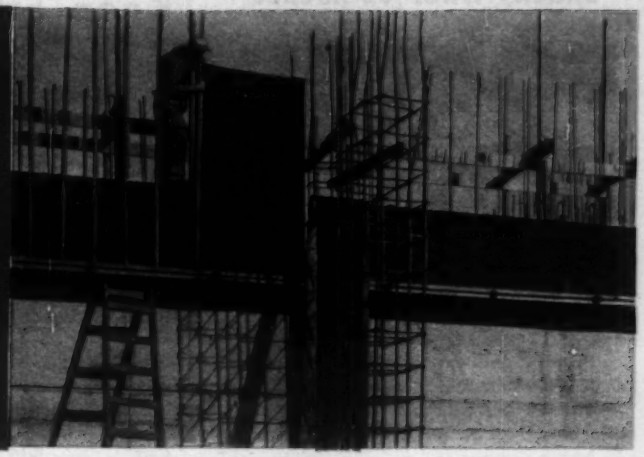

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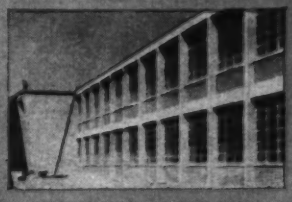
SCHOOL—Paxon Field School at Jacksonville, Florida. Built in 1954 by East Coast Construction Company. President C. Bernard reports, "Harborite panels were re-used twenty times on each side...expect another twenty uses. Edges held up exceptionally well under rough usage and the finished concrete had a smoother finish than that obtained with other form materials."



ARENA—Livestock arena at the State Fair Grounds in Raleigh, North Carolina has drawn international acclaim for beauty and design. Harborite concrete form panels were used in construction of this unique structure. Seats 5400 spectators. Erected in 1953 by William Muirhead Construction Company. Architects were Matthew Nowicki and William Henry Dietrick.

OFFICE BUILDING—New headquarters for the Tacoma City Light offices completed in 1954. Roy T. Earley Construction Company used Harborite concrete form panels for entire exterior surface of building...re-used on adjoining shop building. Contractor says "...more than normal number of re-uses, stripping was easy, finish was held to a minimum." Architect was Silas E. Nelson of Tacoma.

APARTMENT—An outstanding new landmark on Seattle's skyline is the 900 University Apartment house. Harborite concrete forms were used exclusively on the exterior of this 22-story building. Only one set of forms was built. Says contractor Louis E. Baldwin, "These forms have been used 22 times each...are in good enough shape to use on another building of similar size. We recommend Harborite to any contractor." Architect, Earl W. Morrison.

Eighteen years of use in every type or concrete construction has proved that Harborite produces better jobs at lower cost. Harborite's medium-high density overlay is manufactured specifically for concrete form work. Tough, smooth surface will produce glasslike concrete until literally worn away through use. Re-use factor is exceptionally high—50 being common, 2 to 3 times amount not unusual. Special solid core construction of SUPER-Harbord boat plywood adds extra strength and durability. There is no plywood made that matches this material in all 'round quality.

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Keep 'Em Rolling

Virginia tests electronic scales to weigh trucks at normal highway speeds

Trucks will soon be weighed by electronic scales while traveling at their normal highway speed. Located on U. S. Highway No. 1 near Woodbridge, Va., an electronic scale for weighing vehicles in motion has been built by the Virginia Department of Highways as a cooperative research project with the U. S. Bureau of Public Roads.

Already in use for experimental purposes, the new scales are expected to be in complete automatic operation for enforcement purposes by early September.

As trucks roll over the electronic scales, set in the regular highway lanes, their speed, weight of each axle, and spacing between axles is automatically recorded, without the driver having to stop.

If a truck is overloaded or fails to drive over the scales, it will automatically be signaled to stop at a weight station located a few hundred yards beyond the electronic scales where it will be reweighed, and fined if heavier than the state's weight laws permit.

The new scales allow highway officials to enforce state weight laws without interfering with the normal highway speed of most trucks. Only those that are overloaded or are approaching the legal weight limits will be rechecked.

And for planning purposes, highway departments can get such information from the new scales as the frequency of different axle and truck loads, and the gross tonnage on a section of highway without affecting the normal flow of traffic.

• **How scale is set up**—The electronic weighing system consists of a narrow, free platform built in the surface of the highway and supported by load cells containing columns which have wire strain gages attached to them. Weight applied to the platform by a vehicle passing over it produces changes in electrical currents flowing through the strain gages. These changes, through electronic equipment, are reproduced as a pattern of light on an oscilloscope where they are photographed for record purposes.

Accuracy of weighing trucks in motion by this system is within less than 5% of the conventional method of weighing a truck while stopped.

Cost of building the Virginia scale has run about $6,000. But similar scales built in the future should run only about $4,500, according to the Bureau of Public Roads—$1,500 for installing weight platforms in highways and approximately $3,000 for the electronic equipment. Equipment for the Virginia scales was made by Cox & Stevens Electronic Scales of Wallingford, Conn. (Previously Cox Stevens Aircraft Corp. of Mineola, N. Y.)

The idea of weighing objects by electronic scales is not new. It is commonly used for weighing aircraft, freight cars traveling at slow speeds, and materials in hoppers or ladles. But the Bureau of Public Roads tests are believed to be the first time that vehicles have been weighed while traveling at their normal rate of speed.

• **Other states experimenting** — The first electronic scales for weight in motion were built by the Virginia Department of Highways and the Bureau of Public Roads in 1951. Tests on those scales proved satisfactory and work on the present scales was started this June.

Other states, too, are beginning to use this type of scale for both enforcement and planning purposes. Minnesota is building a similar set near Minneapolis on U. S. Highway No. 12, and Oregon and Iowa began using them for planning purposes last fall. Their value lies in economy—only one man to operate—and safety. About 90% of the trucks are not required to leave and re-enter the traffic stream.

Here is how the Bureau of Public Roads foresees that states could successfully use electronic scales for enforcement purposes.

Weight platforms could be built throughout a state's highway network. The electronic equipment necessary to operate them could be mounted in pickup-type trucks and moved from place to place as checks on traffic are desired. The Bureau of Public Roads, figures that truckers would be saved most of the delays encountered at weighing stations; and states would have a closer tab on weight violators. Also, the very presence of these weight platforms would have a tendency to keep truckers in line.

In the Virginia tests, where some 2,400 trucks were weighed over each 24-hour period, less than 1% were found to be overloaded. But before the scales were set up, the percentage was about 5%.

Construction Combine Wins California Dam Contract

Pacific Gas & Electric Co. has awarded a contract to Morrison-Knudsen, Inc., Walsh Construction Co., and B. Perini & Sons for construc-

tion of Wishon Dam on Kings River, 85 mi east of Fresno, Calif.

Wishon Dam, a concrete-faced rockfill structure, is the first of two dams the company will build on the river in connection with development of 274,000 kw of generating capacity. Estimated cost is $80 million. Wishon Dam will have a maximum height of 250 ft, a crest length of 3,350 ft, and some 3,680,000 cu yd of rock.

The contract for Helms Dam, the second major structure, probably will not be awarded until next year, although a contract for an access road to the site is in the offing.

Concrete-faced, rockfill dams are a type that PG&E has championed. Selection of that type was based on studies of the behavior of two other similar PG&E dams—the 328-ft-high Salt Springs Dam, completed in 1942, and the 233-ft-high Bear River Dam, completed in 1952 (ENR, Jan. 22, 1953, p. 35). In three years of operation Bear River Dam has needed no maintenance on the concrete face and has had leakage of less than 3 cfs.

As a result of the extremely good maintenance record of Bear River Dam, design modifications made for Wishon Dam are expected to substantially reduce the cost. The upstream face of Wishon will slope 1 to 1 and 1.1 to 1, as compared with 1.3 to 1 for Bear River.

Bid Opening Set for First Phase of Airport Expansion

Bids will be opened Sept. 6 for construction of the 4½-mi dike that will add 1,400 acres to International Airport at Oakland, Calif.

The dike, part of the airport's $11.5-million expansion program, is expected to cost about $700,000. It will extend out a mile into shallow waters of the bay from the present shortline east of the airport, then run west and north to the airport shoreline. The enclosed area will be filled out for construction of a new terminal, operations and hangar sites, and an 8,600-ft runway (ENR, May 26, p. 26).

Medical Center to Expand

The University of California will open bids Aug. 23 for a $2.8-million combination student union and dormitory building at the San Francisco Medical Center.

The 175,000-sq-ft building, to be of steel frame reinforced concrete construction, will provide quarters for 148 nursing students and 45 interns plus members of the house staff. The union portion will include lounges, meeting rooms, restaurants, swimming pool, gym, handball and squash courts.

Darex Diary

No. 5 of a series

by Henry L. Kennedy

Member, American Concrete Institute

Manager, Construction Products

Dewey & Almy Chemical Company

*Why air entrainment makes better concrete blocks

*Abrasion resistance of air entrained concrete

TALKING WITH PEOPLE about concrete blocks, some of them have said to me, "When you add an air entraining agent to the concrete block mix, I should think it would make the blocks *lighter*. Is it true that the block actually may be heavier?" The answer is that when the optimum amount of DAREX AEA is present, the resulting block will be *denser* — and therefore slightly heavier than the block made without AEA. Furthermore, it will be stronger.

The reason is relatively simple when you consider that concrete blocks are made from a harsh, dry mix that does not flow into place readily. The effect of the right amount of air entraining agent is to create a great many tiny air bubbles that serve as "ball bearings". They help the mix flow into place and against the form faces, giving better compaction and consolidation in the machine. A denser block results . . . such blocks have sharper corners and edges, with smoother texture on all faces, and lower absorption.

The maximum consolidation which takes place when the correct amount of DAREX AEA is used, often permits the use of a little more water without slumping than could be used in the absence of air entraining agent. And, as you probably know, a little more water added to an overdry, tamped mix will result in higher strengths.

* * * * *

Not long ago, we received a call from a Maine contractor about a job where he had used DAREX AEA concrete to get maximum resistance to freezing and thawing. He had just learned that this concrete would also be subject to severe abrasion, and he wanted information about the abrasion resistance of air entrained concrete.

There is one fact that is irrefutable — the abrasion resistance of *any* concrete is a direct function of the compressive strength of that concrete. In the case of air entrained concrete, if the air content is below 6%, and if the mix ingredients are reproportioned so that the cement content remains constant, then the entrained air has a negligible effect on the properties of abrasion resistance as well as compressive strength.

The most important single procedure to be watched is to assure proper curing of the surface. If the concrete is improperly cured, you will have poor abrasion resistance, air or no air. A good, uniform curing compound like DARASEAL will assure maximum hydration of the cement, producing a high degree of strength, with attendant surface hardness, as will other methods which assure proper curing. Of course, if you use a metallic or any emery floor hardener, the abrasion resistance will be even higher than the strength factor of the concrete indicates. But the concrete surface must be properly cured.

There has been some demand for a test method to determine the abrasion resistance of concrete. Subcommittee IIIM of Committee C9 of ASTM has been studying this problem for several years. Progress is being made and it is hoped that a test method will be available by this time next year.

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Horseshoe Falls: On a Construction Anvil

Niagara Falls—one of the greatest shows on earth—has had for months now a spectacular side show performed by construction men.

From first one bank, then the other, at the very brink of the cataract, constructors have pushed cofferdams into flows to 20 mph and more, to perform remedial work on the international Horseshoe Falls.

Purpose of the $17.5-million project is to improve upon natural beauty of the Falls while preserving its power potential. By deepening the river near either shore and pushing control works into fast water upstream, Canadian and U. S. constructors will make it possible to spread more evenly across its crest the spectacular flow of the great waterfall. In addition to improv-

PUSHING NIAGARA AROUND is no mean trick. Contractor on U. S. side built dike from shore (below, bottom right) by working behind short shield at riverward end.

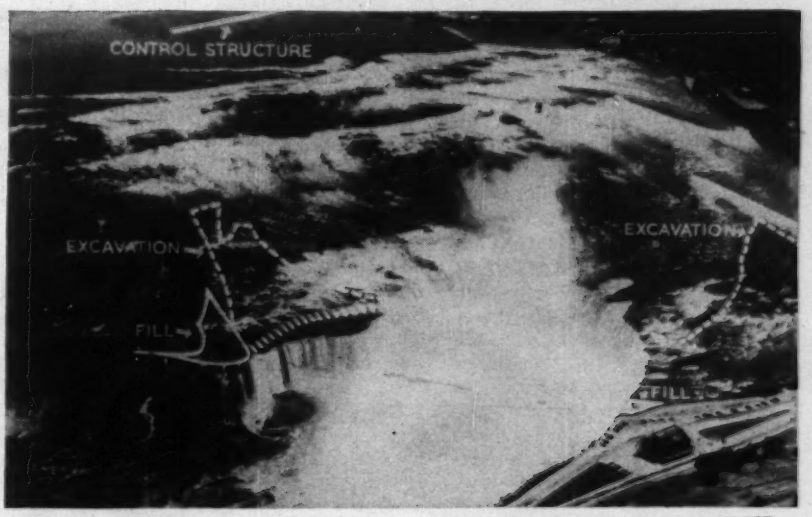
ing its scenic splendor, the remedial work is intended to slow erosion at its center by spreading the flow concentrated there.

To push cofferdams toward midstream from both sides simultaneously would have restricted the river's flow dangerously and unnecessarily. So excavation on the brink of the falls was undertaken on the U. S. side first and now is completed there with only minor clean-up to do before the contractor finishes completely. Excavation to deepen flow near the Canadian shore is now under way. And less than a mile upstream the Canadians have under construction the $14.5 million gated structure to span from shore to midstream as key to complete control of the scenic Horseshoe Falls.

On the New York side, on Goat Island, the story is an exciting one of how a daring contractor bid 40% low to take a $596,000 excavation contract. He did this by figuring on an unorthodox way to extend his cofferdam 350 ft from shore in 18 ft of turbulent water just above the falls.

On the Ontario side, where water is not as deep near the Falls, the corresponding excavation work now being done is somewhat less spectacular, though more extensive (64,000 cu yd as compared to 24,000). Engineering interest on the Ontario side centers on the 1,550-ft control structure one-third completed upstream, with its 100-ft gates and overhead prestressed bridge, being built within sheeted cofferdams of weighted steel cribs.

Altogether, this construction is to be completed by two years hence as a 50-50 international effort to make best scenic use of minimum flows over



NIAGARA REMEDIAL PROJECT is four-year job due for completion in 1957.

WORKING RIGHT AT THE BRINK drillers on the Canadian side excavate rock near shore to spread flow more evenly there.

UPSTREAM COFFERDAM built from Ontario shore in stages encloses construction of permanent gated control. Cofferdam is of interlocking steel cribs weighted with concrete blocks.

CONTROL STRUCTURE within steel-crib cofferdam has 100-ft. gates between piers bridged by prestressed concrete girders. Gates are built for automatic lowering.

. . . Niagara's Horseshoe Falls

the American and Horseshoe Falls at Niagara. These flows were set by 1950 treaty: 100,000 cfs in daylight hours of the tourist season, and not less than 50,000 cfs at any other time.

The U. S. Corps of Engineers, under Buffalo District Engineer Col. Loren W. Olmstead, is construction agency for the U. S. For Canada, the Hydro-Electric Power Commission of Ontario is doing the remedial work under direction of Chief Engineer Otto Holden; W. L. Fraser is project manager.

• **Daring scheme on U. S. side**—McLain Construction Corp. of Kenmore, N. Y., did 24,000 cu yd of excavation in the rocky riverbed last construction season; both its bargain price and its cofferdam construction method were spectacular. The method proved satisfactory; and so did the price, according to McLain.

Instead of an anticipated steel or timber crib cofferdam angling out into the fast water above the falls from well upstream, Norman McLain, the firm's president, chose to build a sheet steel and rock dam straight out from shore.

Key to success in his choice of methods was a movable sheet-steel shield, tied by cable to an anchor on a small island 1,300 ft upstream. The shield was moved along to deflect the raging current and allow driving of a line of steel sheet piling in comparatively still water. Behind the tight row of sheet piling went quarry-run rock to form the actual dam for diverting flows fast as 25 mph.

• **Shield deflects current**—McLain's inspiration, the shield, was a steel box-frame with vertical sheet piling on its downstream side. Two were used: one 13 ft long and the other 26 ft; both were roughly 20 ft wide and 20 ft high.

One 1¾-in. wire rope from each of its upstream corners tied the 13-ft shield—used on the first 200 ft of dike—to the upstream anchor. A 5-part line of ¾-in. wire rope was clipped to the guy lines to form the operating line for positioning the shield, while a cable from shore at the dike controlled lateral movement. A 50-ton crane did the actual moving of the shield.

For the riverward 150 ft of dike, built across the fast Niagara current, the 26-ft shield was used. This larger shield was guyed to the upstream island with two 1⅞-in. lines—prestressed bridge-suspended cables. With its far greater resistance to flow, the big shield had to deflect pressures estimated up to 100 tons. It therefore had no operating line from upstream but was merely let swing in an arc on its hefty guy lines as the work moved riverward.

Both shields were placed on the river bottom slightly upstream from the driven sheetpile and overlapping the end of the last pile driven. At the shore end of the shield, a few sheetpiles acted as a flap to close off the gap between shield and dike.

• **Dike placed in safety**—In the protected water behind the shield, sheet piles were aligned as driven along two H-beam wales. The wales were extended riverward and positioned by being tied to an adjustable vertical post on the shield.

Steel tie-rods to deadmen held the sheeting against rock dumped to form the cofferdam.

In the greatest depth of water, 18 ft, the dike was about 36 ft wide at its base, 22 ft at its top. Sheetpile extended some 4 ft above the top of rock.

The cofferdam was built in stages. It went out 200 ft., then a wing dam angling back to shore downstream was built without need of the shield. Next, the dike went 150 ft farther toward midstream, and a second wing dam angled back finally to enclose the entire area to be excavated.

Two safety cages made up of steel frame and reinforcing bars were positioned just downstream of the work. And the workers had safety belts and lines to wear when the work was most hazardous.

No one went over the Falls.

McLain's forces, under Clifford Stumm, finished up the rock excavation early last winter, and just in the nick of time. They didn't lose a minute after final inspection in getting at removal of the cofferdam. If ice had ever breached it before they had it out, the honeymoon would certainly have been over. But it was methodically and successfully removed before winter troubles came, the shields again doing their job well during removal.

CRANE MOVES SHIELD into position in front of sheetpile line extended straight from shore on U. S. side.

• **Weighted cribs on Canadian work**—For the 1,550-ft control works now being extended into the river from the Ontario shore 5,000 ft upstream, a cofferdam of weighted steel cribs was developed. The work here has been done largely by Ontario Hydro's own forces.

Prefabricated steel cribs 10 ft long, 30 ft wide and 14 ft high were designed and built. They interlock and have slots for six steel H-beams which are driven to position each crib. Then each is weighted with 36 six-ton precast concrete blocks which serve as construction roadway as well as dead weight. Steel sheetpiles are driven along the outside of the weighted crib to form the dam against river flow.

Within six stages of this cofferdam, as it is extended riverward, a total of 13 "fish-belly" (bascule) gates are to be installed. Each gate is 100 ft long and 10½ ft high between concrete piers spanned by a prestressed concrete roadway bridge, built as precast girders in a casting yard on shore.

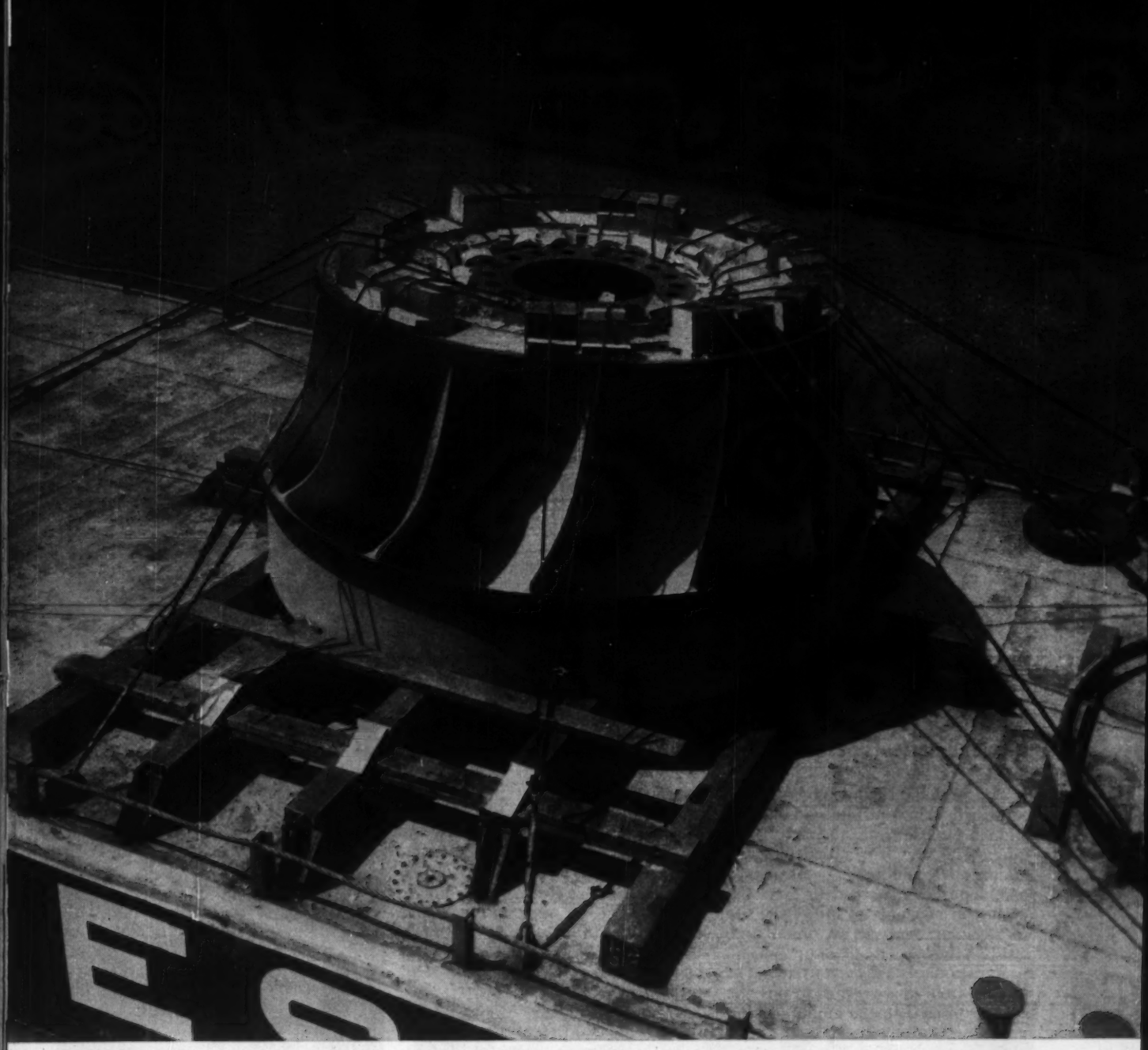
Each 150-ton, hydraulically controlled gate is built for automatic lowering when ice pressures exceed 500,000 lb. They are of German manufacture, and Canadian Vickers Ltd. has the $1.8 million contract for their installation.

In normal operation, the gates will be down in daytime to let pass the required 100,000 cfs; they would be raised at night, showing only a foot or so above river level, to cut down flow over the Falls.

Desired control of the river is attainable by extending the control structure only to near midstream. The shallower portion near the American side carries relatively little of the total flow.

Ontario Hydro forces, under project manager W. L. Fraser, have until July 1, 1957, to finish the structure. Placing the cofferdam in the fast river is rather slow and tedious work.

When the whole job is done, and newly landscaped observation points have been built down to the very brink on either side of the Horseshoe Falls, the sideshow of hazardous construction will be gone. But the main event, the falling water, will have been made an even more beautiful spectacle.



173,000 lb. "GULLIVER"... largest Francis type runners ever cast in one piece

Baldwin's three hydraulic turbine runners for the Garrison hydroelectric plant are the largest of their kind in the world. 18½ feet in diameter, 9 feet high and 173,000 pounds in weight, they are the largest Francis type runners ever cast in one piece. Maximum horsepower rating is 134,000, limited by a generator loading of 115%.

Because of their size, these runners had to be shipped by inland waterways from Baldwin's Eddystone Division plant near Philadelphia. The photo shows the first runner being readied for shipment to the Corps of Engineers, U.S. Army, flood control and power generating project. It was transported on this barge up the Hudson River to the Erie Canal and across the Great Lakes to Superior, Wisconsin. A special railway car built by Baldwin carried it the rest of the way to Garrison Dam on the Missouri River near Riverdale, North Dakota.

A new bulletin on Baldwin and Pelton hydraulic turbine developments has just been printed. If you'd like a copy, please write to Dept. 5209, Baldwin-Lima-Hamilton Corporation, Philadelphia 42, Pa.

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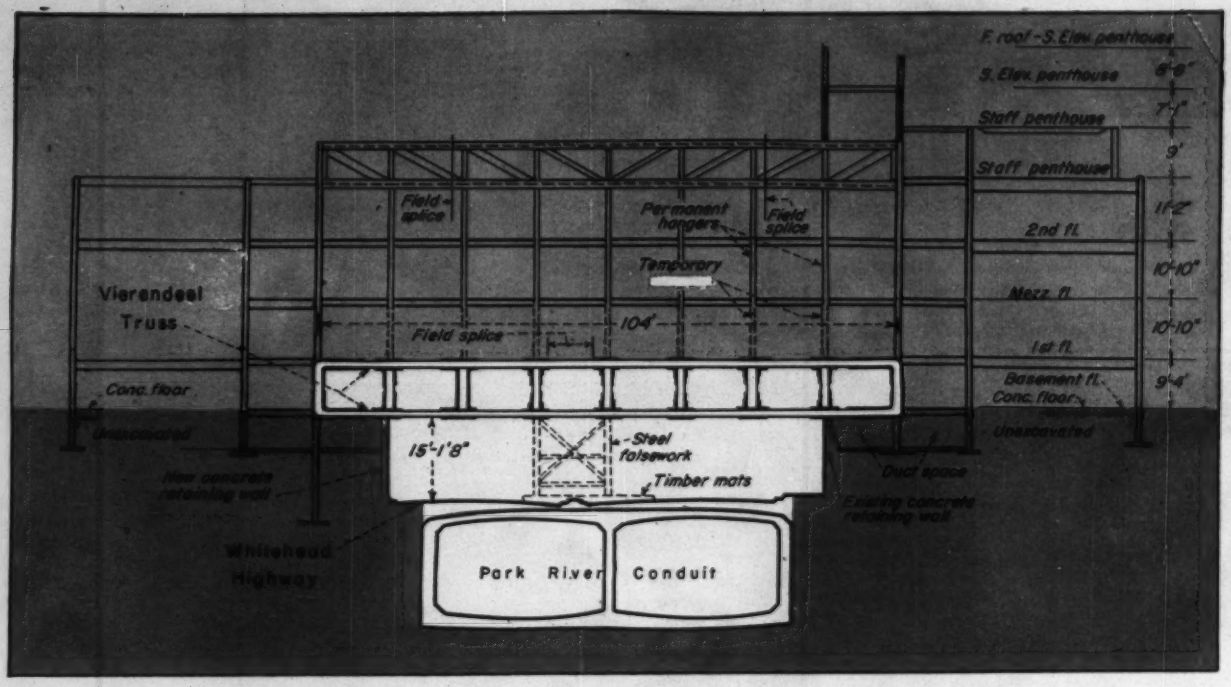


Building Straddles a Highway Over a River

All-welded steel structure with long-span Vierendeel trusses and suspended floors posed erection problem because of unusual site

The $2 million public library under construction in Hartford, Conn., was a tough problem from the very beginning. The city had a difficult time finding a site and finally chose an odd one. The designers had to exert the utmost in ingenuity to utilize the site to advantage and at the same time satisfy the library's requirements. And then the steel erectors found it was far from an easy task to put the steel in place with the limitations imposed by the site.

Seeking a downtown location, preferably vacant land, the city decided to use property it already owned along both sides of a depressed limited-access 6-lane highway in the heart of town. Thus, the city not only obtained a central location without the expense of demolishing existing structures, but it also avoided removal of property from the tax roll. The site offered the additional advantage that the building could cover more ground than was included in the lots along the highway; for the structure could straddle the depressed highway.

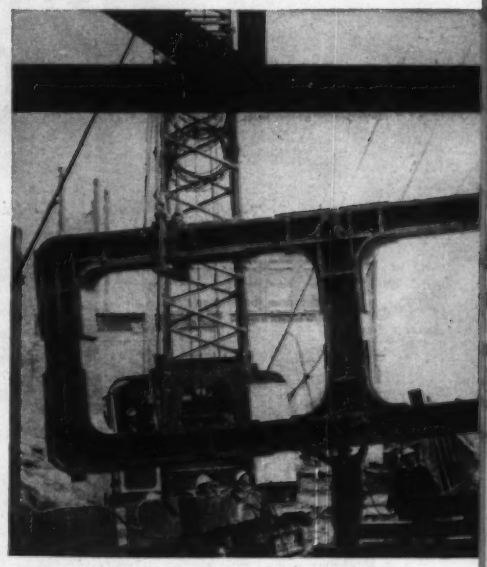
• **Books and a river**—A building over an expressway is unusual enough. But there was a further complication: under the highway at this point flows a sizable river.

When the road was built, the Park River was confined in two concrete conduits, each the width of three highway lanes. The conduits were designed to carry H20 highway loadings. Obviously, they would not be able to take any building loads. So the library had to span the expressway without support—up to 104 ft. Furthermore, construction loads on the conduit could not exceed loadings equivalent to H20.

Complicating the problem even more, a large portion of the basement, over the expressway, was needed for storing 280,000 of the library's 350,000 books; so columns that would interfere with the book stacks were highly undesirable there. Design live load in the storage area is 150 psf, whereas 60 psf is allowed for offices in the building.

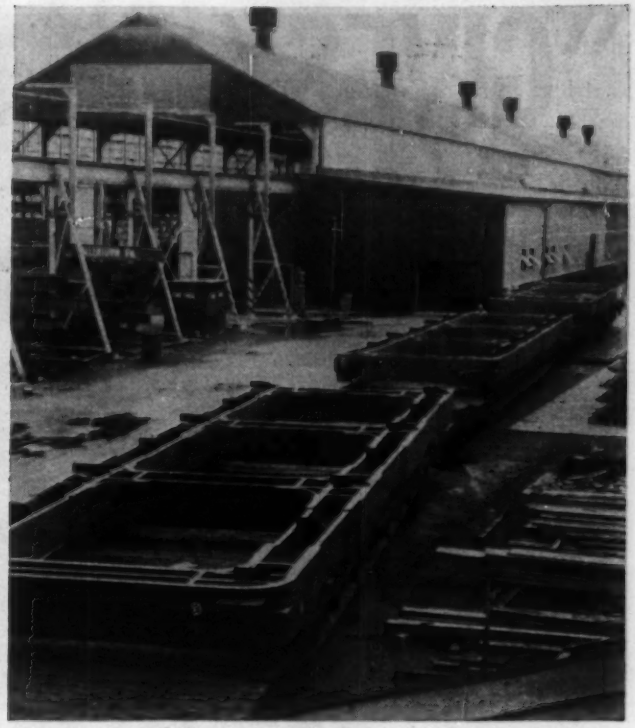
The final design of the library calls for a welded steel structure 192 ft long and 176 ft deep, including a 56-ft long wing at the front. Access to the street bridging the expressway is at first-floor level. The basement provides 15-ft clearance over the roadway.

• **Trusses are answer**—Key to the success of the design are five steel Vierendeel trusses that carry the structure over the expressway. One-story deep, spanning up to 104 ft, they carry the basement on the lower chord and the first floor on the top chord. Upper floors are hung from roof structure, to ease load on Vierendeel trusses.

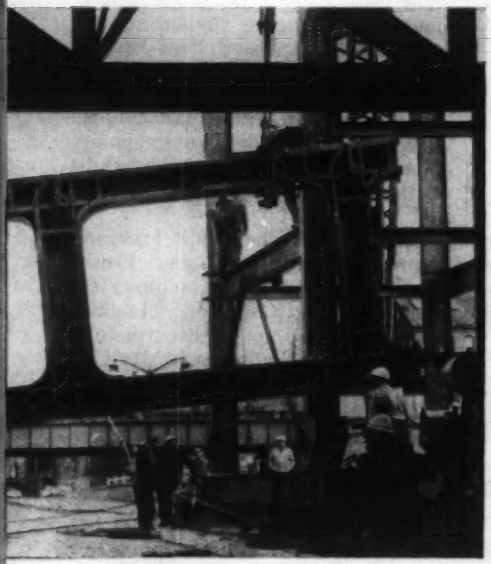


Having verticals rigidly connected to the chords and capable of resisting bending moments, these trusses lack diagonal members, which would obstruct book storage in the basement. The verticals are spaced 13 ft c-c, to coincide with every third row of book stacks, which are spaced 4 ft 4 in. c-c. Ends of the trusses are supported on steel columns, which are founded on steel piles.

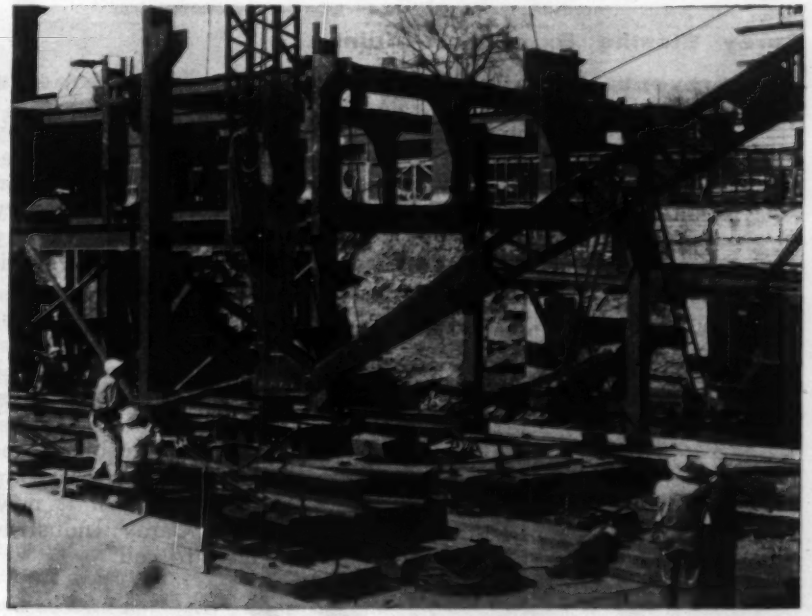
COMPONENTS of Vierendeel trusses were formed by welding steel plates together.



HALF TRUSSES were shipped from the fabricating shop in a horizontal position because of their weight.



VIERENDEEL trusses were erected in lengths weighing up to 50 tons.



STEEL FALSEWORK supporting trusses at center of highway and 35-ton derrick were placed on timber and steel load-distributing mats over underground river.

The mezzanine and second floor are suspended from five welded steel trusses in a penthouse. Also one-story deep, these trusses carry the penthouse floor on the lower chord and the roof on the top chord. All members are 14-in.-deep wide-flange sections.

Steel for the new library was fabricated by Lehigh Structural Steel Co. in Allentown, Pa. Members of the Vierendeel trusses were made up by welding together steel plates into straight sections and short curved units. The verticals were connected to the chords with curved L-shaped units at the ends of the trusses and T-shaped units in the interior. Ends of the curved units were milled to the exact dimensions required before they were arc-welded to the straight sections. Electrodes used were mostly the E60XX type.

The complete 104-ft truss weighs 94 tons. Because of the weight and span, each truss was fabricated in two pieces weighing up to 50 tons. In transport, they had to be laid flat, whether on flatcars in traveling by rail or on lowbed truck trailers.

The roof trusses were shipped in lengths weighing up to 30 tons, to keep them within the capacity of the 35-ton derrick employed for erection. (Five trusses similar to the roof

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trusses were also used in the basement where they would not interfere with book storage.

• **Erection problems**—The steel erector, the Lehigh Construction Co., a subsidiary of the fabricator, received permission to close off the expressway from 9 am to 3:30 pm daily. Consequently, every operation had to be planned so that it could be completed in this period.

Steel falsework was erected to support the inner ends of the two lengths of the Vierendeel trusses until they were welded. Timber mats and steel grillage beams were used to distribute the weight of the falsework and trusses and of a 35-ton derrick, so that H20 equivalent loading would not be exceeded on the conduit roof under the highway.

The Vierendeel trusses were erected with a 35-ton crawler crane alongside the highway. After the trusses were field welded, the falsework was removed and the derrick jumped to the first floor (top chord of the trusses) to erect the steel for the upper floors.

Temporary columns were set atop the verticals of the Vierendeel trusses while the upper steelwork was placed. Thus, the hangers supporting the mezzanine and second floor became columns, capable of supporting the roof truss sections until they were welded together. When all connections were field welded, the temporary columns were removed and the weight of the upper stories shifted to the roof trusses.

Schutz & Goodwin, Hartford, Conn., were the architects. Daniel Tasillo was supervising architect for the City of Hartford. Robert Loomis, Windsor, Conn., was the structural engineer. The Wadhams & May Co., Hartford, is the general contractor.

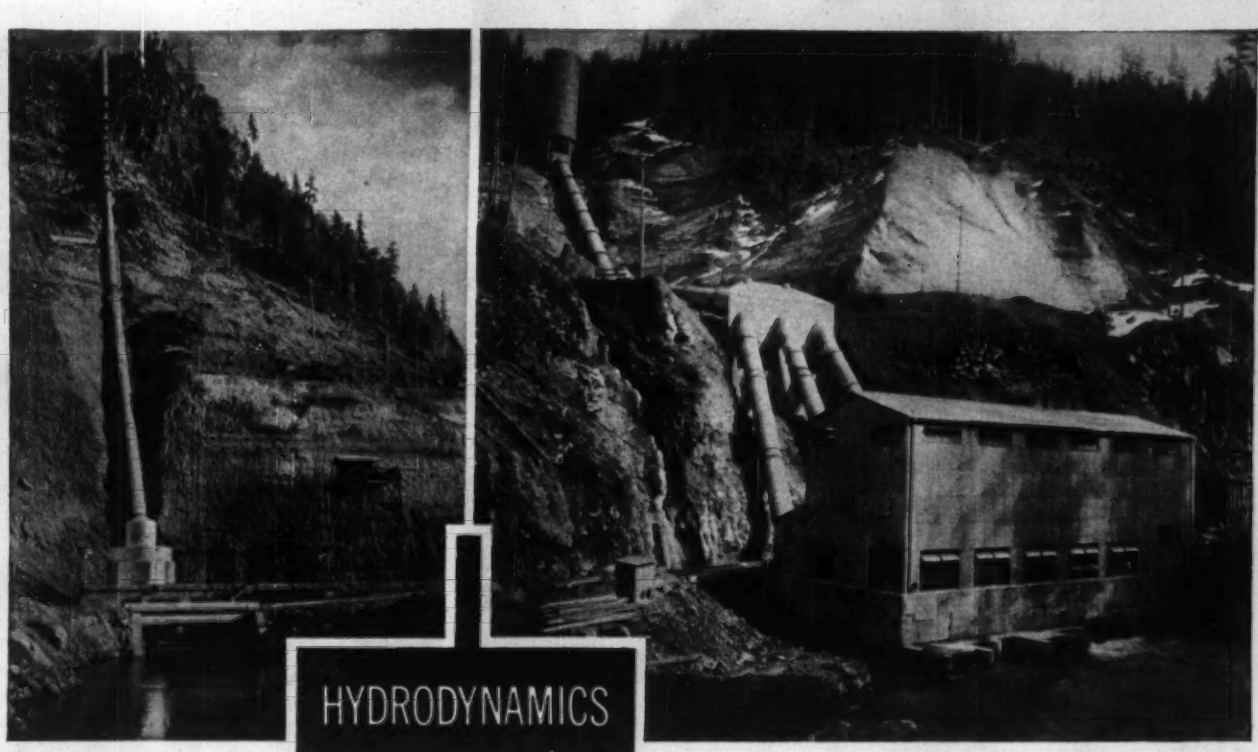
New Board to Plan Site For Miami Trade Center

Florida's Inter-American Center Authority has set up a 6-member permanent board of design to produce a site plan for Miami's proposed $100-million Inter-American Cultural and Trade Center.

Site of the project is a 1,800-acre tract of land at the north end of Biscayne Bay.

The board, composed of architects, is expected to produce the plans by Jan. 1 of next year.

Creation of the design board followed the authority's approval of a trust indenture for a $70-million revenue bond issue that will finance part of the construction. The stage is now set for court proceedings validating the bond issue.



Clearwater No. 2 Station, typical of the seven outdoor stations remotely controlled from Toketee, contains one 39,350 HP SMS turbine with elbow type Pressure Regulator and Butterfly Valve. The net head is 742 ft.

Toketee is the main operating Control Station of COPCO's North Umpqua hydro project. It contains 3 SMS 20,700 HP turbines with Howell-Bunger Valve Pressure Regulators and Butterfly Valves. The net head is 433 feet. Consultants on the North Umpqua project: Pioneer Service and Engineering Company.

Planned and Accomplished: LOW-COST POWER

Eight years ago, California-Oregon Power Company was faced with two major challenges. One was its accelerating load demand for low-cost power; the other, that of the rugged, undeveloped and remote North Umpqua River territory to "come and get it." In a continuing race between construction and the load demand, both challenges have now been met. Six of the eight plants are now delivering power, and the last two are nearing completion.

Prime factors in the economies of the project are a central attended station of conventional design – Toketee – and seven unattended stations of the remote controlled, single unit, outdoor type. These factors contribute to economy in both construction and operation.

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TRAFFIC ON FREEWAYS in downtown Los Angeles has reached record proportions. This section of the Hollywood Freeway near the four-level grade separation carries 170,000 vehicles a day. Only permanent solution in sight is more freeways.

In the city of Los Angeles . . .

What's Wrong With Freeways?

L. L. Wise
Associate Editor

The trouble with freeways in Los Angeles is that too many people use them. This statement, often seemingly made in jest, is actually a relatively good analysis of the current stage of development of the system of superhighways that crisscrosses downtown Los Angeles and extends out to suburban areas. The eight-lane Hollywood Freeway, for example, has a weekday traffic flow of 170,000 vehicles a day. That makes it the most heavily travelled road in the world.

Peak-hour volumes are nearly 2,200 vehicles per lane averaged over four lanes in one direction. That's far in excess of the handbook maximum lane-carrying capacity of 1,500 vehicles per lane per hour. And it's not recommended as desirable. But it's a real tribute to the excellence of the design made almost a decade ago.

Sometimes, however, accidents or other mishaps block part of the traffic flow. Result is a traffic jam that often takes hours to clear. It's at these times that greatest criticism is levelled at the freeway system by disgruntled users and the local press.

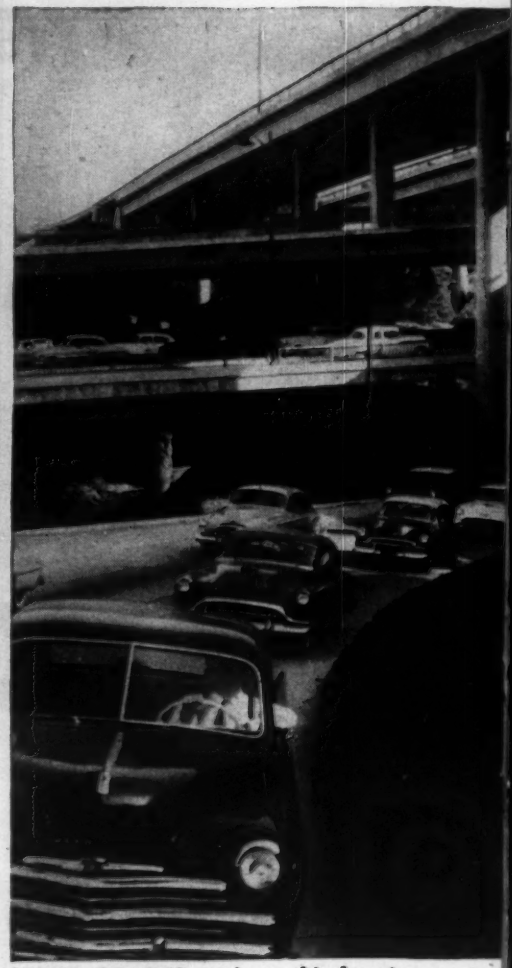
Officials of California's Division of Highways are hopeful and confident that the overcrowded condition can be alleviated. Here is an analysis of the major factors causing the congestion and what is being done in the way of remedial measures.

Designed 10 Years Ago

• **CAUSE**—Some of the basic elements of the freeway system were designed as much as 10 years ago. Design of the now-famous, four-level grade separation that serves as intersection of the Hollywood, Harbor and Pasadena Freeways was first described in ENR March 23, 1944, p. 103. Other elements now in use were laid out nearly that long ago.

The first postwar freeways were designed for traffic expected 20 years in the future. But growth of the Los Angeles area has been so tremendous that those 20-year traffic volumes were reached almost as soon as the various freeway sections were put into service.

Not even the strongest booster of the Los Angeles Chamber of Commerce could have anticipated, a decade ago, the growth of the area. Population in Los Angeles County has almost doubled since 1940, now standing at more than 5,000,000 people.



STEEP GRADES, such as this lowest ramp of the four-level interchange, slow traffic when used by trucks. Future free-

But, even more important, motor vehicles doubled in 10 years to where there are now in excess of 2,500,000 registration in Los Angeles County.

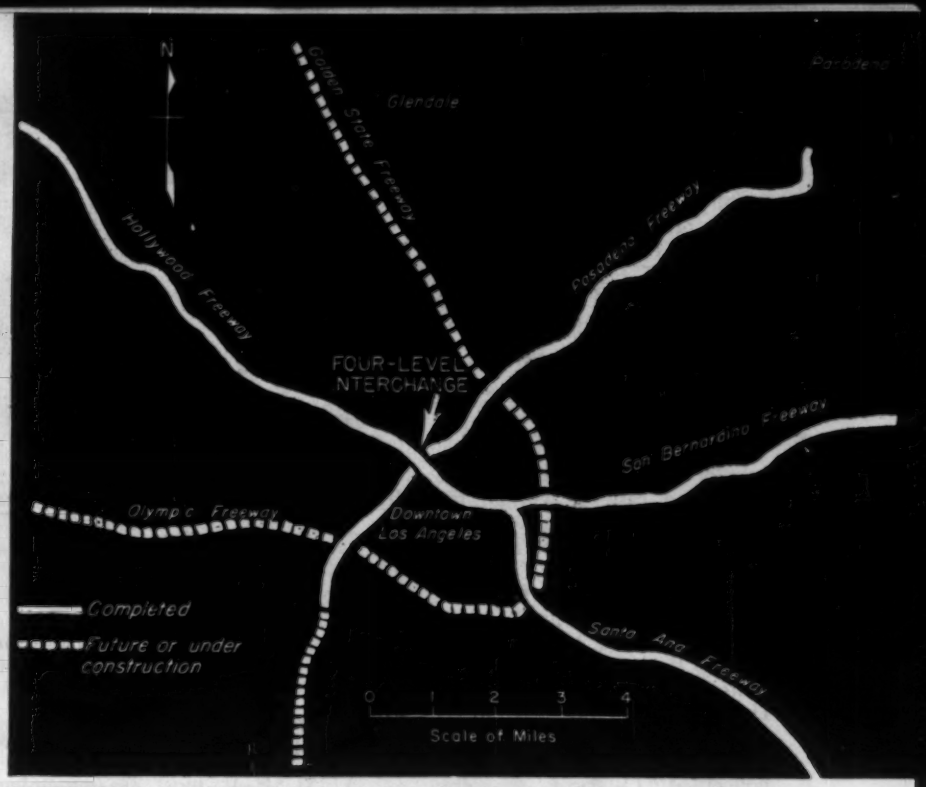
Effect of such tremendous growth on orderly development of a highway program should be obvious. It is a tribute to the highway planners that the facilities provided are handling the high volumes as well as they are.

But, 10 years ago experience with high volume, high speed, limited access traffic arteries was almost nonexistent. And, as drivers are people, driver behavior patterns under these new circumstances could not be accurately foretold.

• **REMEDY**—To meet demands imposed by new population and additional vehicle registrations requires either more roads or diversion of traffic to other types of transit. How these traffic alleviation measures are being handled will be discussed later in this article.

Now that substantial mileage of

way design will steer clear of such grades unless absolutely necessary as it was here.



FREEWAYS RADIATE out from downtown Los Angeles with greatest traffic at the four-level interchange. State highway engineers believe traffic load will be spread with construction of Olympic and Golden State Freeways now in the planning and site acquisition stage.

freeways are in use, highway officials are continually studying freeway operations. Purpose is to improve design of future routes and to increase operation ease of existing routes. For example, in the four-level grade separation area, two temporary channelization plans were tried with sandbag installations. One of these proved to be successful in eliminating cross conflicts in a merging area and was made permanent. The other in a diverging area did not help operating conditions and was abandoned.

One of the more important design lessons that will be applied to new freeways concerns ingress and egress. An attempt will be made to keep points of ingress at an absolute minimum. But points of egress will be increased to permit escape in periods of acute congestion.

Driver education is one of the most apparent needs with respect to freeway operation. Driving on freeways with larger volumes and faster speeds requires full-time driver attention entirely novel for most city drivers. City streets and most country roads are designed to accommodate weaving and merging at reasonably low speeds. But motorists on freeways must learn to blend with traffic at relatively high speeds rather than make abrupt changes at low speeds.

Too Few Routes

• **CAUSE**—The basic freeway system serving downtown Los Angeles consists of four main routes that for all practical intents and purposes radiate out from the four-level grade separation. Extending 10 miles to the northwest is the Hollywood Freeway that serves the San Fernando Valley as well as to some extent western Los Angeles and the cities of Beverly Hills and Santa Monica.

The 8-mile long Pasadena Freeway (formerly the Arroyo Seco Parkway) extends to the north and east. It serves residential areas in the foothills of the San Gabriel Mountains.

Extending to the south is the Harbor Freeway ultimately to be 23 miles with 3 miles now completed.

The Santa Ana Freeway extends to the southeast serving the great southeast industrial area as well as residential communities in Orange County. There are more miles of this freeway completed than any of the urban freeways. Joining the Santa Ana Freeway near Downtown Los Angeles is the San Bernardino Freeway that extends east to San Bernardino County.

Summing up the foregoing description of the freeway routes, it can be seen that freeways now completed and in service form a basic cross pattern. But it is increasingly obvious that this simple pattern is not enough. Drivers go out of their way to use the freeways. Reason is that, except in times of acute congestion, they can save time. The result: Many more cars use the freeway than would if other high-speed routes were available.

Heart of the reason why more freeways are not available is the pattern of financing followed. All California highways are built on a pay-as-you-go system. Toll financing that might accelerate construction is infeasible due to the large number of ingress and egress points needed in an urban freeway system.

And, even if unlimited funds were available, construction might not be accelerated much. A study made for the Hollywood Freeway a few years ago indicated that if all the money needed to build the 10-mile basic section of this freeway had been available immediately, only a year could have been saved over the normal orderly construction program.

Some $40 million a year is now being spent on freeways in Los Angeles. These funds are only part of an overall integrated state highway budget. And it would be a mistake to over-

design one highway route at the expense of not providing traffic alleviation in other areas.

• **REMEDY**—Obviously, the problem of too few routes can best be solved by building more routes. Two new freeways will be added to the basic downtown Los Angeles net as quickly as financing, right-of-way acquisition and design problems will permit. The Golden State Freeway will roughly parallel the Hollywood Freeway to the north and east. It will go through industrial areas of Burbank, Glendale and East Los Angeles. The Olympic Freeway will roughly parallel the Hollywood Freeway to the south and west. It will start in the industrial area of East Los Angeles and extend west to the residential sections. Both routes will provide traffic relief for the Hollywood Freeway and relieve congestion at the four-level separation.

As far as increased financing is concerned, California has done as much or more than any other state toward this end in the last few years. Basic financing for the freeway program came from the Collier-Burns Highway Act of 1947 that increased all highway user taxes. A further increase was made in 1953 and reaffirmed by this year's state legislature.

Construction Delays

• **CAUSE**—Since the first of the postwar freeways was opened to traffic in 1949 there have been inevitable traffic bottlenecks caused by construction operations. These have been removed as fast as could be permitted by construction progress. But when one was removed, a new one was generally created at the next most inefficient point of traffic flow on that freeway.

As the Hollywood Freeway was gradually extended, traffic increased from an initial volume of 32,000 vehicles a day to the present 170,000 vehicles a day. Each time a new link was added, more traffic was added. And that meant that the temporary points of entrance and departure from the freeway were overcrowded.

Another source of traffic delays is east of the Civic Center through the industrial area and across the Los Angeles River. At present 129,000 vehicles a day are being carried across a Los Angeles River bridge designed many years ago for 6 lanes, including interurban rail lines, since abandoned. The bridge is being widened to carry a divided highway four lanes in each direction. But traffic will continue to bottleneck through the area until construction is completed early this fall.

• **REMEDY**—Future freeway construction should not be as subject to traffic bottlenecks. Main reason is that most future work will be on freeways removed from the heart of the downtown area where traffic is bound to be lighter. But attention will still have to be given to providing smooth transitions from temporary termini of freeways to city streets and vice versa. A good example of how this can be done is at the present southern terminus of the Harbor Freeway. The south bound lanes feed into Figuero Street which has been established as a one-way traffic arterial southbound. In combination with Figuero Street is Flower Street which is a one-way traffic arterial northbound. This one-way street combination extends southerly for some distance and is the answer to a smooth flowing transition.

Truck Traffic

• **CAUSE**—It must be remembered that the freeway system in Los Angeles accommodates mixed traffic including the heaviest type of truck and trailer combinations utilizing the full weights, widths and lengths permitted under law. Traffic volume figures cited in the foregoing are for such mixed traffic.

In addition to normal delays caused by such mixed traffic, the Hollywood Freeway has relatively steep grades that could not be prevented. For example, grades up to 8% exist on important ramp connectons of the four-level interchange. Similarly, heavy grades up to 5% are involved in the Cahuenga Pass section and up to 4.8% through the Civic Center section. With truck traffic using the freeways, these are locations of slow-down forced upon lighter and faster vehicles.

• **REMEDY**—Every effort is given to designing new routes with flatter grades. Most important of these new routes is the Golden State Freeway. This connects a large industrial section with U.S. 99, the major highway route north from the southern California area. Thus, it will permit a great deal of the truck traffic to bypass the Los Angeles downtown area without being involved in heavy commuter-type travel using the Hollywood Freeway.

Failure of Public Transit

• **CAUSE**—Los Angeles grew up in the automotive era as compared with other major U. S. cities that had their major growth in the electric railway age. And most of Los Angeles is devoted to single family dwellings with resultant low population density. This has made it increasingly difficult to operate an integrated rapid transit system at a profit. The Pacific Electric Railway, which once had more than 1,100 miles of track devoted to urban and interurban passenger use, has abandoned practically all rail passenger service in favor of buses. The Metropolitan Coach Lines, successor to Pacific Electric's passenger business is now seeking to convert exclusively to buses.

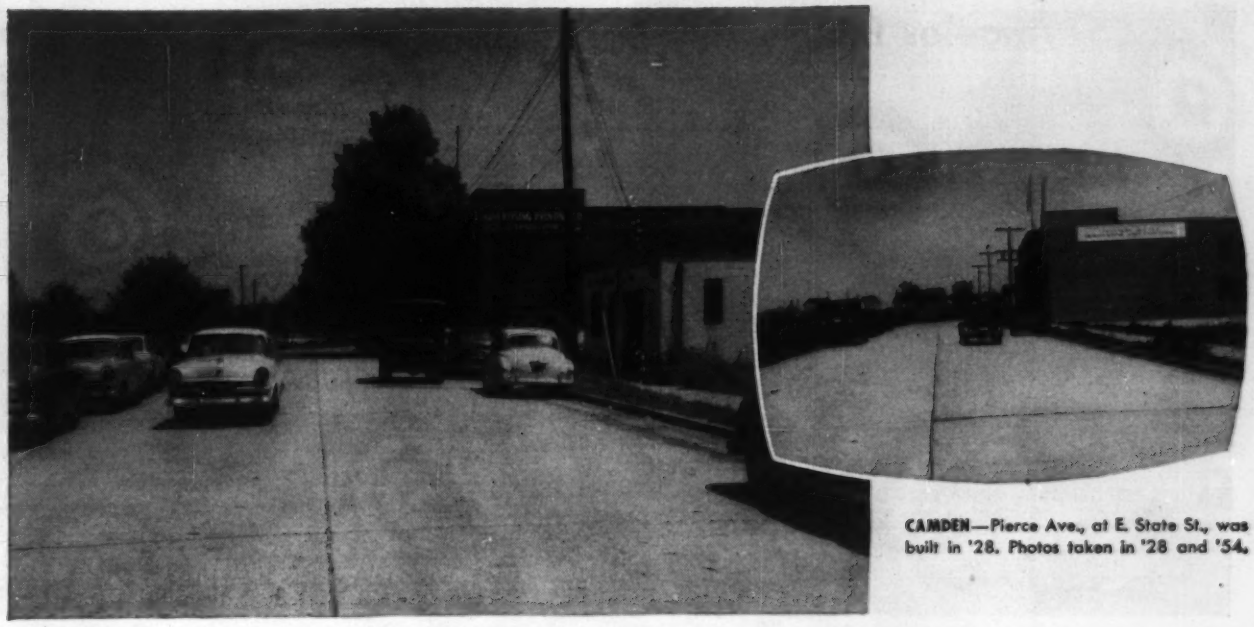
Other areas of the city are serviced by streetcar and street level buses of the Los Angeles Transit Lines. But these facilities must buck normal street traffic and are necessarily slow. This has led to greater use of private automobiles and compounded the freeway problem.

• **REMEDY**—Improved rapid transit service, would, of course, take some load off the freeways. The highway designers are cooperating to the fullest extent to encourage use of buses on the freeways. Special bus-loading turnouts have been built, with financing for the extra cost provided by the city. And recent legislation authorizes expenditures of state gas tax funds for the bus loading facilities.

The legislators and highway people hope that swifter bus service using the freeways will encourage greater use of buses. That's because one bus could replace 20 to 50 automobiles.

In addition, the legislature has formed the Los Angeles Metropolitan Transit Authority. At the direction of the legislature a study of a monorail system extending from the San Fernando Valley to Long Beach was made, largely by the New York firm of Coverdale & Colpitts. Conclusion was that a system with an initial cost of $137 million could be self-supporting with two basic provisos. One is that the system by given tax relief, and the other is that it be permitted to set its own fares.

What will become of the move to provide better rapid transit is not clear at the present time. Low population density will undoubtedly work against any rapid transit scheme without substantial subsidy. Meanwhile growth of auto travel continues and the state highway people are faced with the necessity of providing freeway facilities to meet this growth. Construction of freeways in the southern California area is a responsibility of the Division of Highways of the State Department of Public Works. Frank B. Durkee is public works director, G. T. McCoy is state highway engineer and P. O. Harding is assistant state highway engineer in charge of District VII that includes the Los Angeles Metropolitan Area.



CAMDEN—Pierce Ave., at E. State St., was built in '28. Photos taken in '28 and '54.

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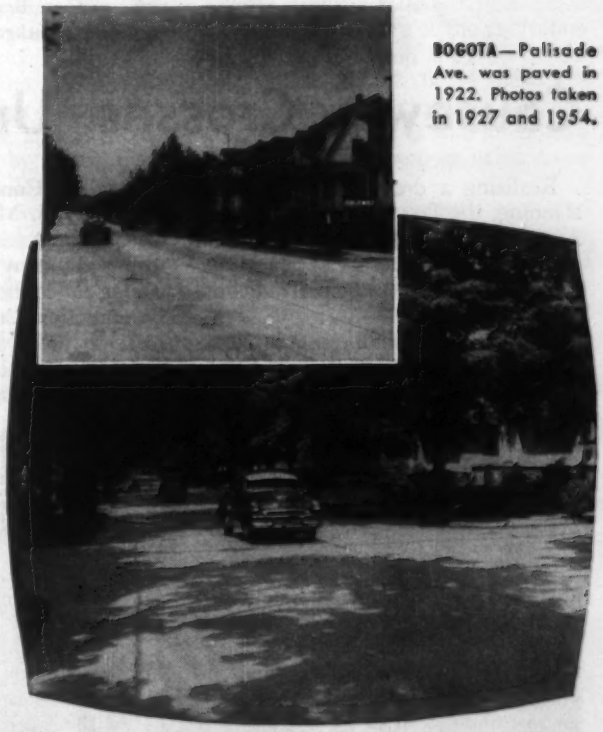

BOGOTA—Palisade Ave. was paved in 1922. Photos taken in 1927 and 1954.

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COLLINGSWOOD—Park Ave., at Dill Ave., was paved in 1921. These photos were taken in 1922 and 1954.

SNAKING across deep water of Straits of Canso, new causeway carries rail and highway traffic to Cape Breton Island. Locks (foreground) are 3,950 ft long. Porcupine Mountain (center background) was quarry for rock used for fill.

Causeway Crosses "Uncrossable" Canso

Realizing a dream of many years' standing, the Province of Nova Scotia August 14 was officially joined by an all-weather "bridge" to rich Cape Breton Island—its principal industrial area.

The link is a rockfill causeway across the 3,600-ft wide, 187-ft deep Straits of Canso, that carries both railroad and highway traffic to and from the industrial and mining areas of the island. A deep navigation lock at the Cape Breton (north) side of the strait, is scheduled for completion late this year.

Although economists and politicians alike had long considered a vehicular traffic link between the island and the Nova Scotian mainland to be an economic must, geographic, geologic and climatic conditions seemed to offer an insurmountable barrier. For many years, the only direct link was a railroad car ferry which could not operate between March and June each year.

Although a bridge has been considered several times (ENR April 17, 1949, p. 17) planners ran into the same objections: Each year between March and June, northern ice field spew millions of tons of ice, carried by a 5 to 7 knot current, through the Strait of Canso—and the ice would endanger a bridge substructure. Another scheme considered—and discarded because of prohibitive costs—was a bridge or causeway and tunnel.

But in the spring of 1952, after designs had been prepared by the Montreal Consulting Engineering firm of O. J. McCulloch & Co., the Canadian Department of Transport surprised many Nova Scotians by issuing a contract to the Northern Construction Co. and J. W. Stewart Ltd., to build a causeway at an approximate cost of $22 million.

The consultants figured that a causeway would solve the ice problem since it would completely eliminate the swift current, and ice carried against the structure would be carried away by the next change of wind, with little harm.

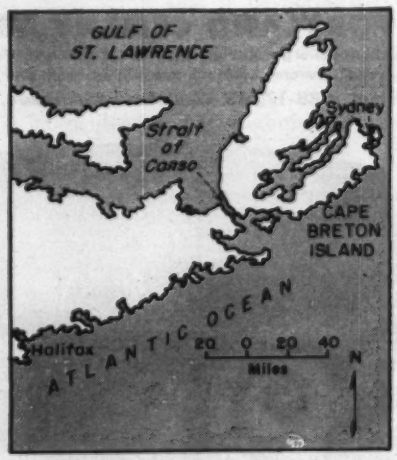
Shortly after letting the original contract, the department let an additional contract for $5.5 million, to T. C. Gorman, Ltd., also of Montreal, for construction of a navigation lock at the Cape Breton side that would be (with approaches) 3,950 ft long, 80 ft wide and 47 ft deep, so that shipping could continue to use the straits as a shortcut from the St. Lawrence to the sea.

• **Mountain moving**—The contractors found a ready answer to the problem of supplying fill in the form of Porcupine Mountain, on the mainland shore of the strait within a quarter-mile of the construction site. "Big Porky" is largely composed of granite, with appreciable amounts of andesite and rhyolite.

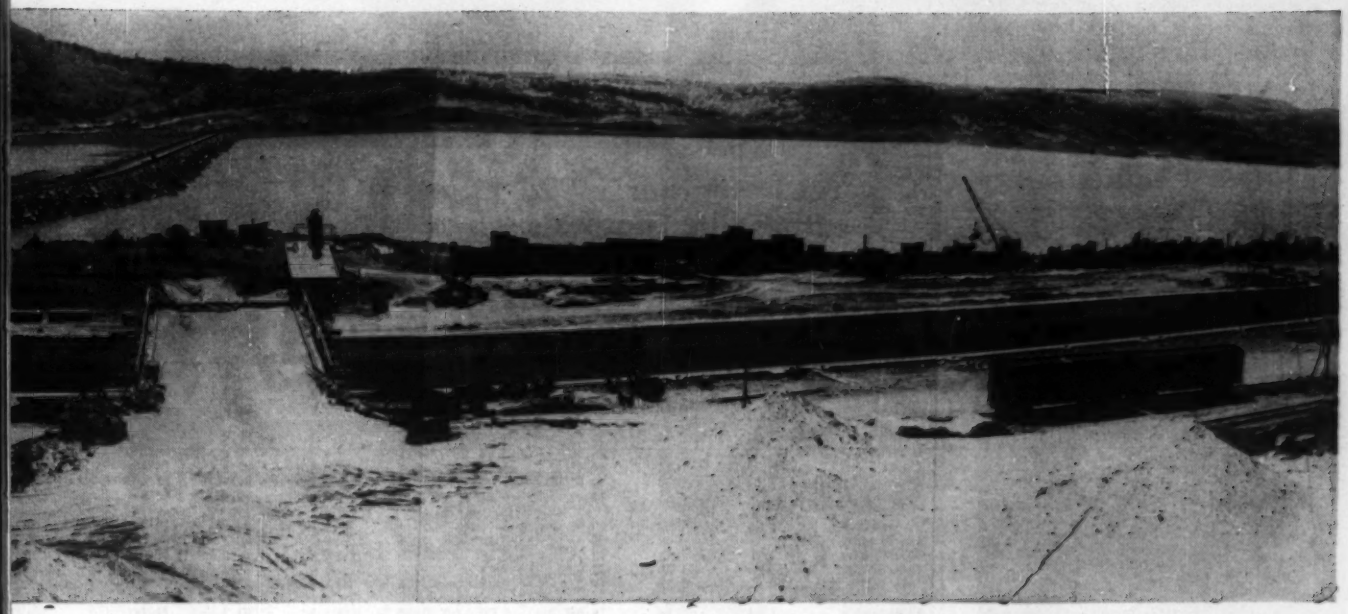
More than 4,500,000 cu yd of this rock would be needed to form the causeway, which had been designed to a length of 4,300 ft, in an "S" curve expected to strengthen the structure against water and ice pressures.

Working a full 24-hour shift, despite often inclement weather, the Northern Construction-Stewart organization found actual causeway construction a matter of force and hauling capacity, rather than one of technical difficulty.

Rock was dumped out as far as possible by big rubber-tired end-dump trucks, then pushed further by bulldozers working close to the water's edge. They created a triangular-shaped



CAPE BRETON ISLAND is economic tail that wags Nova Scotian dog.



causeway, 600 ft wide at the bottom and 80 ft wide at the top reaching a final depth of more than 200 ft, after dumping operations narrowed the channel and thus increase velocity of the current within the straits which caused some additional scour.

And although paving was not completed, rail and truck traffic began using the new link late in May, and the car-ferry ceased operations.

• **Lock construction**—Meanwhile, the Gorman company, with an almost all-native crew, had started operations on lock construction.

In detail, the lock consists of two reinforced concrete mooring berths, each 700 ft long; a lock 1,900 ft long, 80 ft wide, 47 ft. deep, and a 650-ft protection wall of rock riprap at the east end. In addition, approach channels will be dredged by Gorman.

Construction entailed more than 440,000 cu yd of excavation—more than half of it in rock; use of about 100,000 cu yd of concrete; and the approach channel will entail another 137,000 cu yd of dredging.

S. M. Telfer, president of Gorman, said the most spectacular part of his company's work was a 2,200 ft long cellular steel sheetpile system installed along the outer edge of the excavation to permit excavation work to depths of as much as 32 ft below mean low water. The cells were 45 ft in diameter, driven to rock, and filled with clay and rock, as well as being cross-braced internally.

This cofferdam consisted of a total of 34 cells. Although the contractor provided a number of 8 in. diesel pumps for emergency use, they were used only occasionally, after heavy rains. Under normal circumstances, a series of 2 in. pumps were found sufficient to keep the area dry.

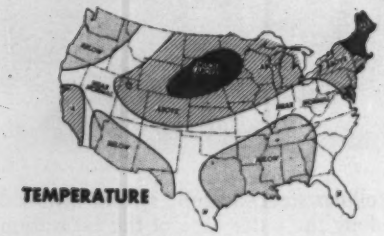
ICE FLOES, in summer, plus swift current, were deterrents to early plans. Here partly finished causeway serves as haul road for builders.

WEATHER

30-DAY WEATHER OUTLOOK

Mid-August to mid-September
by U.S. Weather Bureau

PRECIPITATION



TEMPERATURE

Observed weather in 20 cities, compared with normals

	Precipitation, inches				Temperature, degrees			
	July 1955	Departure fr. normal	7 Mos. 1955	Departure fr. normal	June 1955	Departure fr. normal	Av. daily maximum	Av. daily minimum
Atlanta	6.52	+2.11	28.94	−2.89	79.1	−0.4	88.0	70.2
Baltimore	0.30	−3.64	18.02	−7.45	81.2	+4.9	90.9	71.5
Birmingham	6.85	+1.74	35.47	+1.30	79.9	+0.3	89.5	70.3
Boston	4.28	+1.10	23.36	+0.47	77.2	+5.0	86.4	67.9
Chicago	2.84	+0.11	16.79	−2.67	81.4	+6.8	91.5	71.2
Cincinnati	5.74	+2.04	28.24	+3.25	79.9	+3.3	90.0	69.8
Cleveland	2.50	−0.54	24.40	+5.44	79.1	+5.4	89.9	68.3
Dallas	0.73	−1.24	16.46	−5.70	85.9	+0.4	95.8	75.9
Denver	1.64	+0.42	6.67	−2.26	76.4	+2.7	89.4	63.4
Detroit	1.10	−1.81	12.42	−6.54	79.1	−0.06	89.6	68.5
Kansas City	0.93	−1.90	20.85	−0.11	85.4	+4.5	94.8	76.0
Los Angeles	T	0.00	9.05	−0.56	70.5	−2.0	80.1	60.8
Minneapolis	7.10	+4.43	12.77	−2.36	78.0	+3.5	88.5	67.5
New Orleans	11.84	+4.75	37.62	−1.44	82.5	−0.6	89.4	75.5
New York	0.37	−3.37	14.67	−10.15	79.7	+5.1	87.6	71.7
Philadelphia	1.04	−3.16	15.68	−9.06	81.4	+5.1	91.1	71.7
Pittsburgh	2.23	−1.49	18.90	−4.19	79.5	+4.1	89.5	69.5
St. Louis	5.69	+2.78	20.13	−2.83	83.2	+2.6	91.9	74.4
San Francisco	0.02	+0.01	7.07	−5.40	57.0	−2.1	62.7	51.3
Seattle	1.41	+0.89	13.23	−3.38	62.0	−3.6	69.6	54.4

Precipitation range in 20 cities, in inches

Table shows range observed 33.3% of time. Rainfall heavier 33.3% of time, lighter 33.3% of time.
Computed by U. S. Weather Bureau (based on historical records of actual precipitation)

City	Aug.	Mid Aug.-Mid Sept.	Sept.	Mid. Sept.-Mid. Oct.	Oct.	Mid. Oct.-Mid. Nov	Nov.	Mid Nov.-Mid Dec.	Dec.	Mid Dec.-Mid Jan.	Jan.	Mid Jan.-Mid Feb.	Feb.	Mid Feb.-Mid Mar.
Atlanta	2.79/5.00	2.24/4.30	1.69/3.60	1.64/3.35	1.59/2.90	2.01/3.38	2.43/3.85	2.94/4.58	3.46/5.30	3.42/5.32	3.39/5.33	3.38/5.50	3.36/5.67	3.40/6.00
Baltimore	3.20/5.66	2.65/4.51	2.10/3.36	1.88/3.57	1.66/3.77	1.16/3.45	1.56/3.12	1.99/3.43	2.41/3.73	2.59/3.85	2.77/3.96	2.57/3.68	2.36/3.39	2.48/3.76
Birmingham	2.92/5.25	2.32/4.47	1.71/3.69	1.62/3.14	1.52/2.58	1.84/3.24	2.17/3.91	2.94/4.83	3.71/5.75	3.75/5.58	3.75/5.40	3.61/5.64	3.47/5.88	4.18/6.26
Boston	2.59/4.70	2.32/4.20	2.04/3.70	2.26/3.88	2.49/4.07	2.62/4.26	2.74/4.46	2.82/4.33	2.89/4.20	2.83/4.12	2.39/3.45	2.70/3.99	2.64/3.93	2.12/3.58
Chicago	2.13/3.65	2.11/3.70	2.09/3.75	1.84/3.42	1.59/3.10	1.59/2.95	1.59/2.80	1.46/2.62	1.32/2.45	1.30/2.28	1.29/2.10	1.40/2.16	1.52/2.23	1.76/2.67
Cincinnati	2.24/4.20	2.02/3.64	1.79/3.08	N.A.	1.49/2.90	1.74/3.28	1.99/3.67	2.14/3.48	2.29/3.28	2.32/3.54	2.34/3.80	2.07/3.40	1.80/3.00	2.10/3.64
Cleveland	1.83/3.60	2.07/3.51	2.30/3.41	2.03/3.29	1.75/3.16	1.79/2.97	1.82/2.77	1.76/2.68	1.70/2.56	1.65/2.58	1.59/2.60	1.55/2.52	1.51/2.43	1.81/2.71
Dallas	1.22/2.78	1.50/2.94	1.77/3.10	1.66/3.30	1.55/3.50	1.60/3.25	1.64/3.00	1.36/3.00	1.09/3.00	1.24/3.05	1.39/3.10	1.49/2.70	1.59/2.30	1.96/3.08
Denver	0.87/1.73	0.60/1.39	0.52/1.05	0.57/1.08	0.62/1.10	0.46/0.89	0.29/0.68	0.34/0.72	0.39/0.77	0.28/0.64	0.19/0.50	0.26/0.54	0.34/0.58	0.46/0.84
Detroit	1.79/3.38	1.80/3.41	1.82/3.44	1.72/3.02	1.63/2.69	1.70/2.66	1.77/2.78	1.70/2.66	1.64/2.60	1.63/2.50	1.62/2.40	1.56/2.45	1.51/2.50	2.14/2.64
Kansas City	2.70/5.00	2.84/5.00	2.99/5.00	2.34/4.54	1.69/4.07	1.48/3.21	1.27/2.35	1.02/1.95	0.77/1.55	0.68/1.48	0.59/1.42	0.80/1.66	0.99/1.90	1.29/2.40
Los Angeles	0.0⁰/T	0.00/0.02	T/0.03	0.08/0.32	0.15/0.60	0.20/0.95	0.26/1.30	0.70/2.00	1.14/2.70	1.19/3.00	1.24/3.30	1.12/3.25	0.99/3.20	1.06/3.08
Minneapolis	2 1½/3.70	2.24/3.78	2.29/3.85	1.79/3.15	1.29/2.45	0.98/2.01	0.67/1.57	0.62/1.44	0.57/1.30	0.60/1.19	0.64/1.08	0.58/1.08	0.52/1.08	0.75/1.38
New Orleans	4.44/6.75	3.78/6.12	3.11/5.50	2.55/4.81	1.99/4.12	2.34/4.40	2.69/4.67	2.96/4.92	3.24/5.17	3.36/5.28	3.49/5.40	3.14/5.05	2.79/4.70	3.00/5.00
New York	2.89/4.70	2.46/4.30	2.21/3.40	2.15/3.76	2.09/4.13	2.15/4.04	2.21/3.95	2.42/3.86	2.64/3.77	2.55/3.71	2.46/3.65	2.41/3.88	2.36/4.10	235/4.08
Philadelphia	2.79/5.45	2.44/4.62	2.09/3.90	2.04/3.85	1.99/3.80	2.18/3.65	2.36/3.50	2.50/3.70	2.64/3.90	2.60/3.80	2.57/3.70	2.57/3.69	2.57/3.68	2.60/3.84
Pittsburgh	2.32/3.80	2.20/3.30	1.87/2.80	1.98/3.00	2.09/3.20	1.96/2.96	1.84/2.72	1.96/3.00	2.09/3.27	2.12/3.20	2.14/3.13	1.96/2.98	1.77/2.83	2.06/3.15
St. Louis	2.14/4.11	2.12/3.84	2.06/3.58	1.89/3.42	1.69/3.25	1.78/3.28	1.86/3.30	1.70/3.05	1.64/2.80	1.52/2.75	1.39/2.70	1.48/2.80	1.57/2.90	1.92/3.42
San Francisco	0.00/0.00	0.00/0.13	0.00/0.26	0.10/0.73	0.19/1.20	1.12/2.25	1.04/3.30	1.62/4.28	2.19/5.25	2.34/5.12	2.49/5.00	2.24/4.86	1.99/4.71	1.96/4.13
Seattle	0.18/0.90	0.62/1.55	1.07/2.20	1.70/2.85	2.32/3.50	3.07/4.55	3.82/5.60	4.00/5.74	4.17/5.89	4.14/5.57	4.12/5.25	3.34/4.92	2.55/4.60	2.18/4.02

T—Traces (Less than 0.005 inches)

Mean temperature range in 20 cities, in degrees F.

Table shows range observed 25% of time. Mean temperature higher 37.5% of time, lower 37.5% of time.
Computed by U. S. Weather Bureau (based on historical records of actual temperature)

City	Aug.	Mid Aug.-Mid Sept	Sept.	Mid. Sept.-Mid. Oct.	Oct.	Mid. Oct.-Mid. Nov.	Nov.	Mid Nov.-Mid Dec.	Dec.	Mid Dec.-Mid Jan.	Jan.	Mid Jan.-Mid Feb.	Feb.	Mid Feb.-Mid Mar
Atlanta	78.6/79.1	76.3/78.1	72.9/75.4	68.2/70.2	62.3/63.8	56.6/58.2	51.1/52.7	46.6/48.4	44.0/46.0	48.3/50.3	43.5/45.5	44.0/46.4	45.1/47.9	47.5/50.1
Baltimore	73.6/75.7	71.1/73.3	67.1/69.4	62.2/64.4	56.4/58.3	50.9/52.6	45.6/47.0	40.2/42.0	35.8/37.8	34.2/36.1	33.9/35.7	33.2/36.0	34.6/38.0	38.1/41.7
Birmingham	78.5/79.8	76.6/78.5	73.3/75.6	68.5/70.7	62.2/64.2	56.2/58.5	50.7/53.2	46.5/48.9	44.3/46.5	43.4/46.1	43.5/46.5	44.4/47.6	46.0/49.4	48.8/51.7
Boston	70.9/72.1	67.6/69.2	63.3/65.4	58.9/61.0	54.2/56.2	49.3/51.3	43.6/45.6	36.8/39.2	31.2/34.0	28.9/31.9	30.3/31.2	26.4/29.6	27.8/30.0	31.4/34.0
Chicago	71.7/72.0	68.8/70.7	64.5/66.7	59.3/61.7	52.8/55.3	45.9/48.6	38.6/41.5	31.2/35.0	25.7/30.3	23.7/28.5	23.2/28.1	23.1/28.1	24.7/30.0	29.2/34.2
Cincinnati	72.5/74.4	70.2/72.1	66.5/68.4	61.2/63.3	55.9/57.1	48.6/50.9	42.0/44.5	35.9/39.1	31.4/35.2	30.1/34.4	29.8/34.6	29.9/34.4	31.6/36.0	35.2/39.2
Cleveland	70.9, 72.7	68.5/70.6	64.7/67.1	59.5/61.8	53.5/55.6	47.1/49.3	40.5/42.7	34.3/37.2	29.3/32.9	27.3/30.9	26.9/30.5	26.0/29.6	26.2/29.7	29.8/33.7
Dallas	85.1/86.7	82.3/83.9	78.1/79.7	73.8/75.1	68.5/69.4	61.4/63.1	54.3/56.7	49.9/52.3	47.0/49.3	44.8/48.1	44.1/47.5	45.8/49.2	48.8/52.2	51.9/55.6
Denver	71.8/72.2	67.3/78.6	62.2/63.4	56.7/58.3	50 8/52.8	44 5/47.2	38.0/41.4	33.5/36.7	30.5/33.5	28.3/31.4	27.0/30.0	27.9/31.5	30.5/34.7	33.1/36.8
Detroit	71.0/72.5	67.5/69.5	63.0/65.6	57.8/60.2	51.9/54.1	45.8/47.9	39.2/41.1	32.9/35.3	27.9/30.9	25.6/28.5	24.8/27.7	24.2/27.8	24.6/28.9	27.9/32.1
Kansas City	78.4/80.1	74.6/76.6	69.7/71.9	64.4/67.0	58.1/61.2	50.7/53.9	42.6/45.9	36.7/40.1	32.4/35.9	30.4/33.0	30.0/31.9	30.2/33.6	32.2/37.1	37.3/41.2
Los Angeles	67.4/68.6	66.8/6⁰.1	65.9/67.3	64.4/65.9	62.7/64.2	60.5/62.1	57.9/59.8	56.5/58.2	54.9/56.5	53.4/54.8	52.7/54.0	53.6/54.3	52.9/55.1	54.1/56.3
Minneapolis	70.8/72.3	66.3/68.4	61.0/63.6	55.5/58.3	49.8/51.7	40.4/44.5	30.9/36.0	24.5/28.1	17.2/22.3	13.8/18.4	13.4/16.5	13.3/17.7	15.0/20.8	21.7/25.9
New Orleans	81.8/82.7	80.8/81.9	78.5/79.7	75.1/76.5	70.5/71.9	64.6/66.8	59.0/61.5	56.0/58.5	54.6/56.8	53.2/56.0	52.6/56.0	54.0/57.4	55.9/59.3	57.6/60.8
New York	73.6/74.9	71.0/72.5	67.4/69.0	62.7/64.3	57.0/58.6	51.8/53.2	46.5/47.9	40.2/42.3	34.6/37.5	34.5/35.2	32.0/34.6	30.9/33.6	30.9/33.6	34.1/36.8
Philadelphia	74.5/73.3	72.1/70.6	66.8/68.5	61.6/63.5	55.6/57.6	50.3/52.3	45.3/47.2	39.9/42.0	35.1/37.3	32.7/35.4	31.8/35.0	31.1/34.3	32.3/35.3	36.4/39.2
Pittsburgh	69.4/70.9	67.2/68.9	64.0/65.9	58.8/60.9	52.0/54.4	46.2/48.2	40.3/42.0	34.0/36.4	29.5/32.6	24.8/28.0	26.9/30.1	26.4/30.5	26.9/32.0	30.5/35.4
St. Louis	76.7/78.5	73.6/75.6	69.1/71.2	64.0/66.3	58.1/60.5	51.0/53.9	43.6/46.9	37.6/41.2	33.3/37.1	30.9/35.1	30.1/34.7	31.3/35.7	33.7/38 1	37.8/41.8
San Francisco	60.1/61.2	60.9/62.2	61.3/62.8	60.4/62.0	58.5/60.2	56.4/57.9	53.8/55.0	50.7/52.3	48.7/50.2	47.1/48.9	46.9/49.1	48.3/50.8	50.0/51.7	51.0/52.8
Seattle	62.7/64 1	60.8/62.0	58.0/59.0	54.8/56.1	51.0/52.5	41.8/43.8	43.1/44.5	41.0/42.4	39.4/40.7	37.7/39.0	37.2/38.5	38.2/40.0	39.7/42.0	41.7/43.3

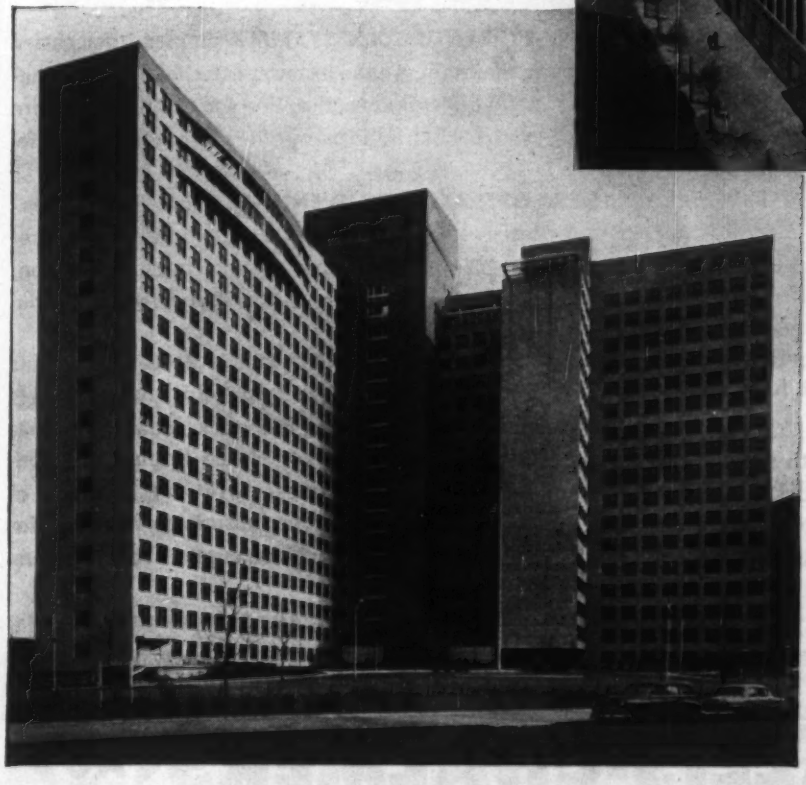
THEY STAND ON STEEL H-PILES

These large multi-story buildings are two of many outstanding structures resting on a foundation of Bethlehem Steel H-piles.

Steel H-piles are economical, they can be driven in extremely long lengths when that is required, and they carry high loads per pile with a liberal factor of safety.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation



▲ John Hancock Building, Boston
The 26-story John Hancock Mutual Life Insurance Building in Boston rests on 1567 H-piles, varying from 88 to 120 ft in length and driven to bed rock. *Architects and Engineers:* Cram and Ferguson, Boston; *General Contractor:* Turner Construction Co., Boston and New York; *Piling Contractor:* Raymond Concrete Pile Co., Boston.

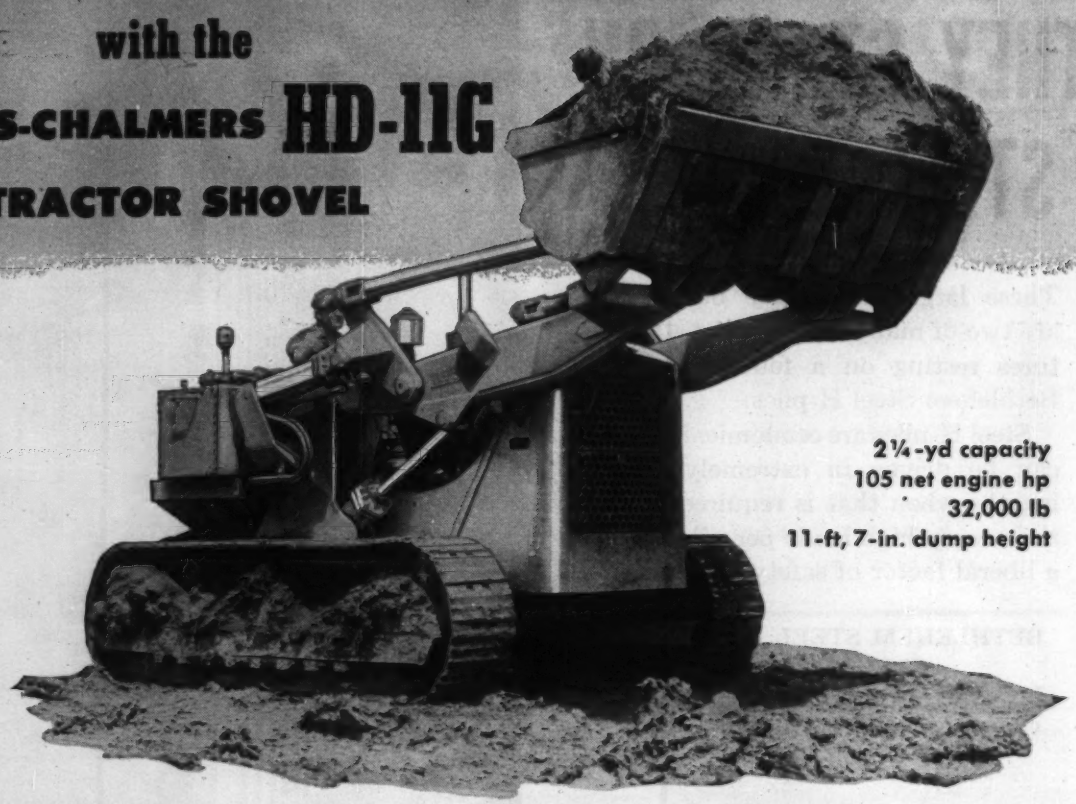
Veterans Hospital, New York City
The 19-story Veterans Medical and Surgical Hospital in New York City rests on 2600 tons of steel H-piles. *Architects:* Alfred Hopkins and Associates; *General Contractor:* Cauldwell-Wingate Co., both of New York. *Piling Contractor:* I. B. Miller Contracting Co., Long Island City, N. Y.

BETHLEHEM STEEL

BETHLEHEM STEEL

NEW OUTPUT ABILITY

with the ALLIS-CHALMERS HD-11G TRACTOR SHOVEL



2¼-yd capacity
105 net engine hp
32,000 lb
11-ft, 7-in. dump height

NEW POWER is provided by the modern, 105-hp Allis-Chalmers diesel. Tornado Turbulence and "follow-through" combustion mean cleaner burning and more power from fuel, as well as smoother engine performance and extra long engine life. Added power pays off in extra crowding and digging ability, fast work cycles.

NEW CAPACITY. Big 2¼-yd bucket is streamlined to roll in large loads more easily. Improved design cuts spillage, clean dumping saves time and effort shaking out loads. Optional 2¼-yd tip-back bucket rolls back 25 degrees at ground level, handles bigger loads of loose material.

NEW STABILITY. Extra-long track — with almost 9 ft of track on the ground — plus 8 truck wheels on each side and 32,000 lb of weight, give the HD-11G unusual stability, plenty of traction.

NEW-TYPE HYDRAULIC SYSTEM is simpler, safer, easier to maintain. Tank has fewer external fittings. Magnetic filters and suction-line screens protect entire system. Hydraulic pump offers fast action, long life.

NEW OPERATOR CONVENIENCE. The HD-11G features easily controlled, accurate bucket action; reduced lever pull with new-type clutch; full vision; roomy platform; foam rubber seat; 60-gal fuel tank.

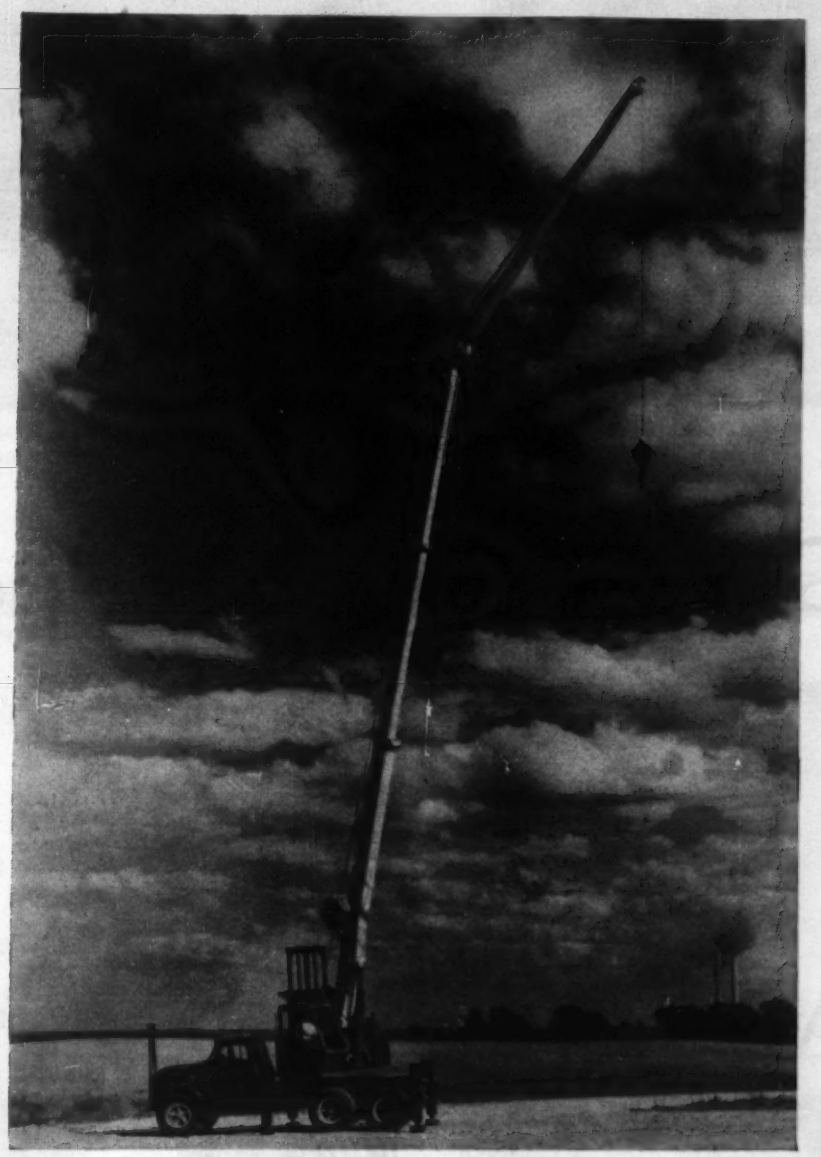
NEW DEPENDABILITY AND SERVICING EASE result from such features as heavy-duty truck wheels and idlers; new, long-life track; new-type, long-lasting, ceramic master clutch lining; unit construction's quick disassembly and assembly of major parts; 1,000-hour lubrication intervals for roller bearing truck wheels, support rollers, idlers.

stop in soon and see the production-boosting HD-11G

CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

Stop in soon and see the production-boosting HD-11G at your Allis-Chalmers dealer's.

ALLIS-CHALMERS



High-Lift Crane Gets to Jobs Fast

The H-5, newest of the Hydrocane line, can be equipped to offer 72½ ft of clearance under the hook and yet when readied for travel can be moved from job to job at 50-mph speeds.

Available as a ½-yd excavator or as a 9-ton lifting crane, the H-5 is designed for mounting on a new or used 22,000 to 26,000 GVW truck—tandem axles are recommended to conform with highway regulations. It can be equipped with a standard two-piece boom—telescoping from 24 to 36 ft long—or a three-piece boom may be employed (38 to 50 ft).

The gooseneck boom tip is said to provide the same effect as an open-throat to improve load clearance and stability and to prevent cable fouling under the boom. A quick-connect jib is available for the two or three-piece boom and with the latter provides a maximum clear lift of 72½ ft at minimum radius.

The new machine offers such features as hydraulic control, outriggers, simplified deck machinery, and short tail swing with close-quarter work. Safety features include an automatic internal lock to prevent the outriggers from drifting down during travel; automatic relief valves for controlled stopping without "bounce-back"; a safety valve in the hoist circuit to prevent shock from abrupt stops, and an indicator in the operator's cab to check the load against weight limits.

The crane is self-powered—equipped with a 75-hp Ford power plant mounted on the upper deck.

Attachments for the machine include a low headroom type, dual ram, ½-yd clamshell bucket. A remote control unit to operate the truck from the crane cab is also available. BUCYRUS-ERIE CO., S. MILWAUKEE, WIS.

Snow Fence Designed for Efficiency With Long Life

An all-steel snow fence now being marketed is said to cut snow control costs in half while giving three times the service life of lath fence. Called the Blizzard-Buster, the fence is reported to pile snow twice the height of the fence itself yet remain clear without "burying".

Constructed of 26-ga galvanized sheet steel and manganese-carbon steel angle posts (2 x 1½ x ⅛ in.), the fence requires no major maintenance.

To install the fence, slots at the end of the rails are lined up and slipped over retaining fingers on the posts. No tie or guy wires or stretching is required.

According to the manufacturer, less than 10 cu ft of space is required to store 1,000 ft of the steel rails and up to a mile of fence, with posts, can be hauled by one truck.

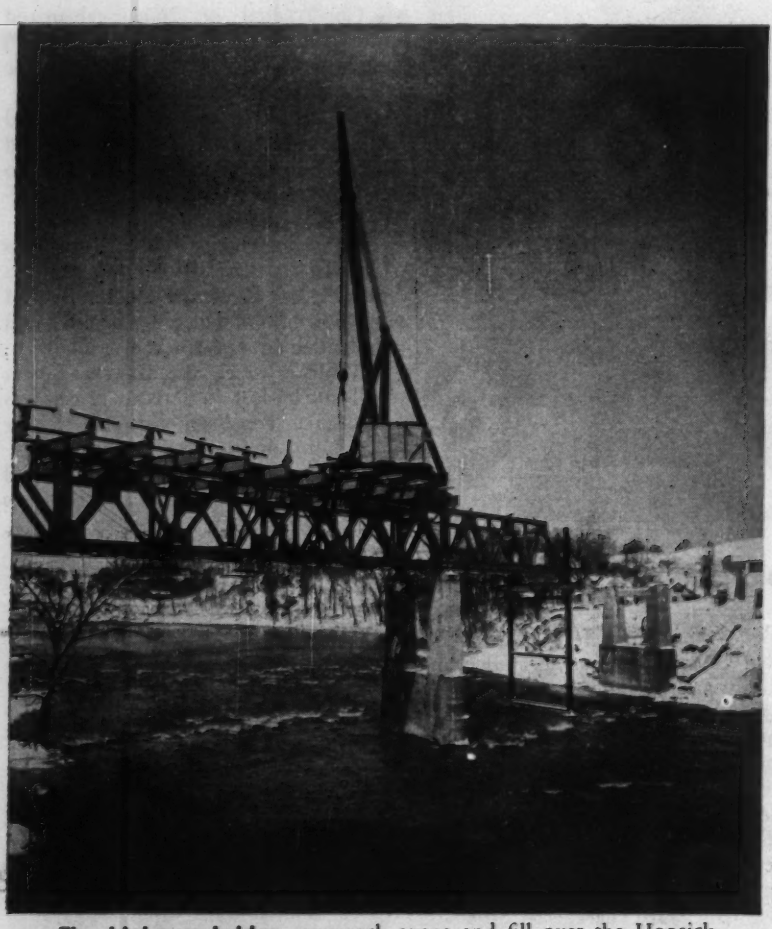
Made of steel, the Blizzard-Buster will not be lost to grass or brush fires and since it is easily recognizable the possibility of theft will be reduced.

The fence can also be used for sand and dust control. NORTHFIELD IRON CO., NORTHFIELD, MINN.

FENCE stops snow without being buried.

Rock excavating at an upstate New York quarry, Fitzgerald Brothers uses modern equipment with built-in safety features. Note that workers remain clear of the loading area.

How a Safety Program helped



The highway bridge, approach spans and fill over the Hoosick River, Valley Falls, N. Y., are completed by Fitzgerald Brothers Company. Warning signs, barricades and other protective equipment promote safety for employees and public.

Another paving job completed with a good safety record! By pre-planning all jobs for safety, this contractor assures continuous operation and the completion of schedules on time.

Fitzgerald Bros. make the grade

Or, why there's joy in Troy by Mr. Friendly

17 years of teamwork with American Mutual Safety Engineers has helped keep accidents *down* . . . profits *up* for this Troy, N. Y. contractor

Road resurfacing, land grading, airport construction and bridge building are all in a day's work for Fitzgerald Brothers Construction Company, Inc. On such jobs for nearly two decades, the Company has realized substantial savings on their Workmen's Compensation and Liability insurance with American Mutual.

American Mutual Safety Engineers and top management work together to assure protection of employees and public. By keeping accidents to an absolute minimum, Fitzgerald Brothers has been able to *save substantially through insurance premiums and dividends.* These savings result in lower operating costs . . . give them a better competitive position in bidding for jobs.

If you're interested in a service that can help you cut accidents and injuries . . . boost profits, write today for your free copy of "Surface Construction Without Accidents." American Mutual Liability Insurance Company, Dept. E-135, 142 Berkeley Street, Boston 16, Mass.

AMERICAN MUTUAL

Service from 77 fully-staffed offices!

Savings from regular substantial dividends!

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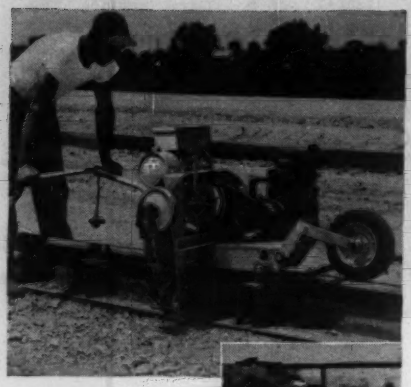
TAMPS 25 FEET PER MINUTE!



Contractors Save Time And Money On Ohio Turnpike with "Form Tampers"

In just a few hours one man with a FORM TAMPER can tamp and oil the forms for the full day's run! And the FORM TAMPER does a better, more uniform job of tamping than can be done by hand. Result: a smoother concrete surface at lower cost—in less time.

SEND COUPON NOW FOR INFORMATION ON . . .

- FORM TAMPERS
- FORMGRADERS
- TRAIL GRADERS
- STRAIGHT EDGES
- SUBGRADE SCRATCH TEMPLATES

THE CLEVELAND FORMGRADER COMPANY

Mills Road, Avon, Ohio

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Midget Ditcher Makes Small Jobs Pay

A potentially valuable addition to a fleet of large ditching machines is Barber-Greene's new pint-sized 702. The small machine will dig to depths of 30 and 40 in. for installing gas, telephone and electric lines, water lines where climatic conditions permit, airport lighting systems, and it may be used also for excavating small building foundations.

Although it's small in size, the manufacturer says that the 702 can "take it", under adverse digging conditions.

The ditcher can be fitted with either of two digging booms. One, 30 in. long, can be equipped with either a 2¼ or 4½-in. bucket line. The other, which digs 40 in. deep, can be equipped with a 2½ or 5-in. line. Switching from one width to another involves changing the bucket line, a job said to be simple enough for one man to do it in 15 or 20 minutes.

The bucket line consists of a series of replaceable heavy steel cutters bolted to a steel roller chain. The design is reported to provide long life, but at such a low cost that the entire bucket line might be considered expendable and could be discarded when worn rather than have the cutters replaced.

A simple system of rotating paddles and plows place the spoil at the edges of the trench to facilitate backfilling and eliminate the need for a cross conveyor. The ditcher boom is angled so that the operator can dig under sidewalks and up to foundations.

Control of the machines crowding speeds during digging is by means of a hydraulic drive that affords an infinite number of speeds from 0 to 40 fpm. The operator can vary the forward speed to match the digging conditions of the moment, and the same system permits instant reversal of the ditcher's movement.

The digging boom can be raised from the trench in a matter of a few seconds by a mechanical lift. Raising the boom automatically puts the machine in travel position.

Portability is a big feature of the 702. Being self-propelled, the machine provides its own maneuverability—a tractor type seat lets the operator guide the machine from a sitting position. Steering is accomplished through independent control of each of the tractor wheels. Travel speed is 240 fpm or about 2¾ mph.

The overall width of the ditcher is 36 in. and its weight is under 2,000 lb so that it can be hauled in the bed of a light truck. It can also be attached by standard towing hitch to a light pick-up or passenger car and towed safely at 45-mph road speeds. BARBER-GREEN CO., 400 N. HIGHLAND AVE., AURORA, ILL.

Concrete Sawing Blade Gets A New Design for Long Life

A new diamond blade has been developed for sawing joints in green or cured concrete. Laboratory and field tests on roads and runways are reported to have shown that the blade, bonded with tungsten carbide and called the DM190, is superior to any other cutting blade now on the mar-

Morrison-Knudsen, Blythe Brothers, *and electric Tournapulls*

. . . the trio which is licking one of the toughest jobs in airport-building history

Excellent production with their fleet of electric Tournapulls is being reported by Morrison-Knudsen Company, Inc. of Boise, Idaho, and Blythe Brothers Company of Charlotte, North Carolina, joint-venturers on dirtmoving work for the new Air Reserve Training Center at Alvin Callender Field, Belle Chasse (New Orleans), Louisiana.

Moving Mississippi River-bed sand from stockpile to swamp fill, each of the combine's 4 high-speed "C's" completes a typical 12,000 ft. cycle every 9 minutes 25 seconds. Of this, load time averages 55 seconds; spread, 20 seconds. Load size, with 148 hp pusher aid, averages 13 pay yards . . . the 5900′ haul over well-maintained sandy roads averages 15.7 mph . . . the 5900′ return, 17.2 mph. These figures, the result of accurate time-studies made by field engineers, add up to 6 loads (78 pay yards) per Tournapull per 55-minute hour. Contractors' load count on this length haul show a similar per-machine average of 5 to 6 loads per hour for the entire construction period.

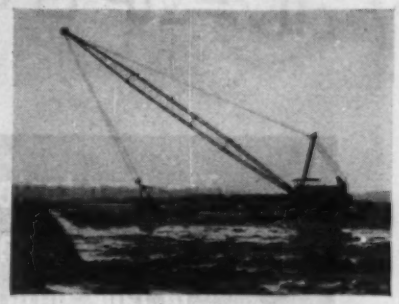
Rigs pull through soft footing

Morrison-Knudsen and Blythe Bros. officials cite "high speed" and "ability to keep traveling through soft fills" as two major advantages of their electric-control Tournapulls. The reason for Tournapulls' ability to work in soft underfoot conditions is simple. Of all scrapers, only Tournapulls have an automatic power-transfer differential *and* power steer. The differential prevents a drive wheel, which loses traction, from spinning and digging in. The power steer works through geared kingpin independent of footing, lets you pivot prime-mover from side to side to move drive wheels out of ruts.

If *you* have a tough job on hand or coming up this season, let us show you how an electric-control Tournapull can help lick it. We'll be glad to demonstrate on your job. There's a size to fit your needs . . . the 7-yard "D" . . . the 16-yd. "C" . . . and the NEW 23-YD. BIG "B".*

*Capacities heaped without sideboards. Factory-built sideboards available to increase capacity for use in light materials.

A mammoth cypress swamp of the Mississippi Delta is the scene of this sand-muck-water air-base job — one of the most difficult contracts in either Morrison-Knudsen or Blythe's long history. "Nothing can work here," many experts said. "The footing is too poor — 7 ft. of bog on top of 100 to 200 ft. of unstable material."



But Morrison-Knudsen and Blythe have rapidly proved the experts wrong. First they put a big dragline on mats, and with it stripped and sidecast all muck and vegetation. Depth of stripping varied from 1 to 7 ft. over the entire 200′ x 8,000′ runway, 2000′ runover strip, taxiway and apron areas. At another location, over a million yards of Mississippi River-bottom sand were dredged and pumped into a giant stockpile. This job, now completed, provided material for sub-base plus an 8′ surcharge. The surcharge, which will help speed settling of the sub-base, will weigh 50 to 100% *more* than the future load of pavement. It will be left on a section of sub-base 30 to 45 days, then moved forward to the next section. Six moves are planned, each move to involve handling about 75,000 yards. Photos and time study on this page were made when Tournapulls were hauling sub-base. Later, the 4 "C's" will handle and re-handle the surcharge.

Government soil experts say the sand here, dredged from river-bottom, is either marine in origin (from the ancient past when the Delta was part of the Gulf of Mexico) or glacial (washed down the Mississippi). In either case, it's probably the same hard-loading, abrasive type of sand that wrecks crawlers in your state.

Tournapull—Trademark Reg. U.S. Pat. Off. P-805-A-b

LeTourneau-WESTINGHOUSE Company
Peoria, Illinois
A Subsidiary of Westinghouse Air Brake Company

Announcing...

®TAPECOAT-X

The time-tested coal tar coating in tape form ... now made with Xtra coating to give you these Xtra advantages

TAPECOAT-X comes in widths of 2", 3", 4" and 6". It is easy to apply and bonds readily to the surface with the flash of a torch. Wrapping is done spirally with only ½" overlap.

XTRA COAL TAR! Provides additional thickness of the same high quality coal tar that has distinguished TAPECOAT since 1941.

XTRA COVERAGE! Added coal tar thickness permits single wrap for same effective protection as present double-wrap method.

XTRA SAVINGS IN TIME AND LABOR! Faster application means lower labor cost.

XTRA SAVINGS IN MATERIAL! Single-wrapping with TAPECOAT-X requires less material, lowers cost.

XTRA CONVENIENCE! New type, self-disposing liner facilitates unrolling, speeds application, never gets in your way.

XTRA ECONOMY! TAPECOAT-X goes farther, gives you more value for your protection dollar.

Write today for the complete facts on this timely development for protecting pipe, pipe joints, mechanical couplings, tanks and other steel surfaces vulnerable to corrosion, above and below ground.

The TAPECOAT Company

ORIGINATORS OF COAL TAR COATING IN TAPE FORM

1551 Lyons St., Evanston, Illinois

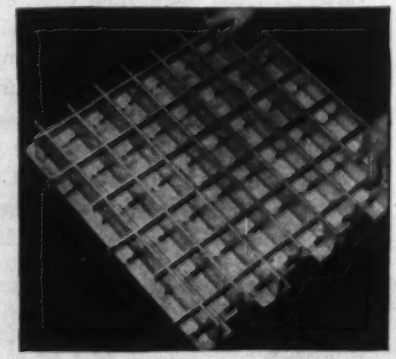
ket when judged on a cost per foot basis.

The performance of the DM190 is due to an improvement in the design of the diamond segments mounted on the periphery of the steel center. Early in the development program it became apparent that the most difficult problem to be licked was that of excess wear of the steel center directly beneath each segment. Designing the diamond segment so that a lip of wear resistant tungsten carbide overlaps the leading edge of the land is said to reduce the wear to a point where it no longer influences the life of the blade.

Wear resistant characteristics of the new diamond segment are reportedly such that the rate of thickness loss is greatly reduced. This feature allows the blade to be used until the full depth of the diamond segment is consumed. BONDED ABRASIVES DIV., THE CARBORUNDUM CO., NIAGARA FALLS, N. Y.

T-Bar Grating Eliminates Forms When Pouring Floors

T-Bar grating is a new building product designed for use with asphaltic or concrete filler. Among the advantages which the manufacturer claims for the grating is the elimination of forms in pouring a concrete floor since the "T's" on the underside form a retaining surface. It is further stated that hard, heavy loads can be handled because the surface is armored with the upright cross bars and bearing bars and the "T's" are placed close together for increased bearing capacity. Weight of a floor of this type is generally less than standard reinforced concrete. T-Bar panels can be made up into 3 x 20-ft sections and cut to the desired dimensions. The "T's" used in construction may be from 1 x 1 x ⅛ in. up to 6 x 6 x ¼ in., according to the bearing strength required for flooring. The grating is formed by pressure interlocking. BLAW-KNOX CO., FARMERS BANK BLDG., PITTSBURGH, PA.



Tournatractor operator sits high in closed cab . . . can see clearly to plow safely through deep drifts.

Snow equipment

that pays off year around

Winter and summer, Tournatractor and D Tournapull will get your public works done faster . . . and at lower cost.

For snow removal, both mount dozer-blades or V-type snow plows. Tournatractor has 208 hp, 4-wheel drive, and speeds to 19 mph. D Tournapull has 138 hp and speeds to 28 mph. Big, low-pressure tires provide ample traction to take full advantage of these drift-busting speeds. Tires and adjustable blade runner-shoes prevent damage to pavement. D Tournapull can also self-load ice and snow from roads and parking lots and haul it away for disposal.

The rest of the year both become 1-man, 1-machine maintenance crews. They drive to the job under their own power. You can run them anywhere to scattered maintenance jobs . . . repairing and building roads, digging drainage ditches, building shoulders, grading alleys, parking lots, handling landfill refuse disposal.

High-speed LeTourneau-Westinghouse tools can keep producing for your community all year long. Get all the facts.

Tournapull—Trademark Reg. U.S. Pat. Off. Tournatractor—Trademark TDP-761-SP-b

After self-loading snow and ice, D Tournapull hauls it away for disposal. Open top "D" can also be loaded with shovel or front-end loader.

D Tournapulls travel job-to-job over regular highways at speeds to 28 mph. Big, low-pressure tires will not damage paving, soft shoulders, curbs, railroad tracks. For greater traction, both Tournapulls and Tournatractors can be equipped with chains.

LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Company

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MORE THAN GRATING
When You
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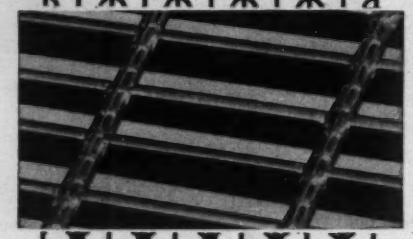
YOU GET...
A "fitting" grating for every purpose.

YOU GET...
Riveted, pressure-locked and welded Irving gratings in steel; and Irving aluminum gratings in riveted and pressure-locked types, designed for your industrial flooring problems.



YOU GET...
Irving engineering procedures which assure precisely fabricated panels designed from your floor plan or sketch for quick, easy installation.

YOU GET...
Prompt delivery anywhere.

IRVING SUBWAY GRATING CO., INC.
ESTABLISHED 1902

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5063 27th St., Long Island City 1, N. Y.
1863 10th St., Oakland 20, California

MEN AND JOBS

H. A. Faber

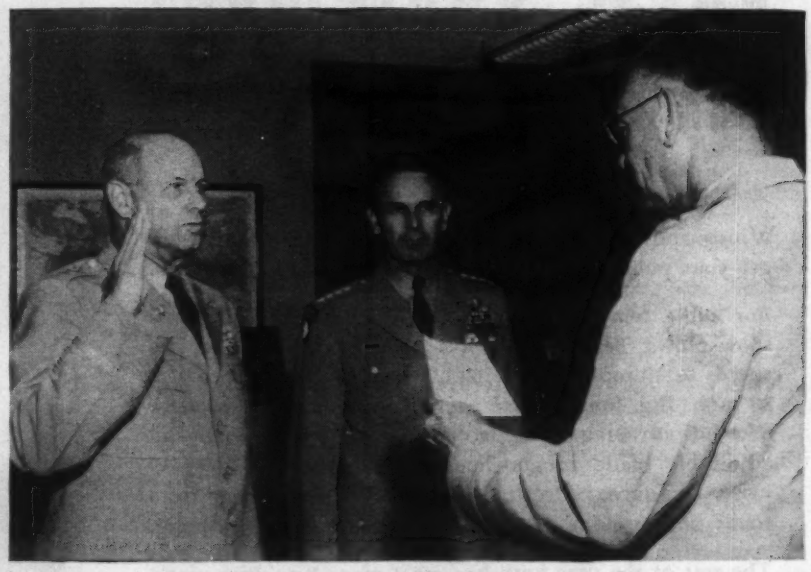
Will Evaluate Research In Sanitary Engineering

Harry A. Faber, formerly managing editor of Water and Sewage Works magazine, has joined the Public Health Service, U.S. Department of Health, Education, and Welfare, as Sanitary Engineering Research Grants Officer.

With headquarters in Washington, D. C., Faber will appraise and evaluate research in sanitary engineering carried on at universities and research institutions; determine areas of need; and recommend methods for strengthening research efforts through such means as research and fellowship grants.

In the field of sanitary engineering, Faber is credited with basic research studies which led to present concepts of free residual chlorination, to the application of chlorine for treatment

(Continued on page 57)



Each Get Another Star

Samuel D. Sturgis, Jr., (above, left), Chief of Engineers, has been promoted to the rank of lieutenant general. He received his third star at ceremonies in the Pentagon, Washington, D. C., as Gen. Maxwell D. Taylor, (center), Chief of Staff, U. S. Army looked on.

On the same day, Maj. Gen. Charles G. Holle, (left), new Deputy Chief of Engineers for Construction, received his second star from Gen. Sturgis. Gen. Holle assumed his new duties last month, succeeding Maj. Gen. B. L. Robinson, now director of JCA.

Here's where you get the answers to steel problems

● Look under "The Youngstown Sheet and Tube Company" in one of these alphabetical or classified phone books.

They represent the 28 conveniently located district sales offices Youngstown maintains across the country. Offices staffed by men who know the steel business. Men who know and understand **your** steel problems. Men who are qualified to help you get the specific steel you need.

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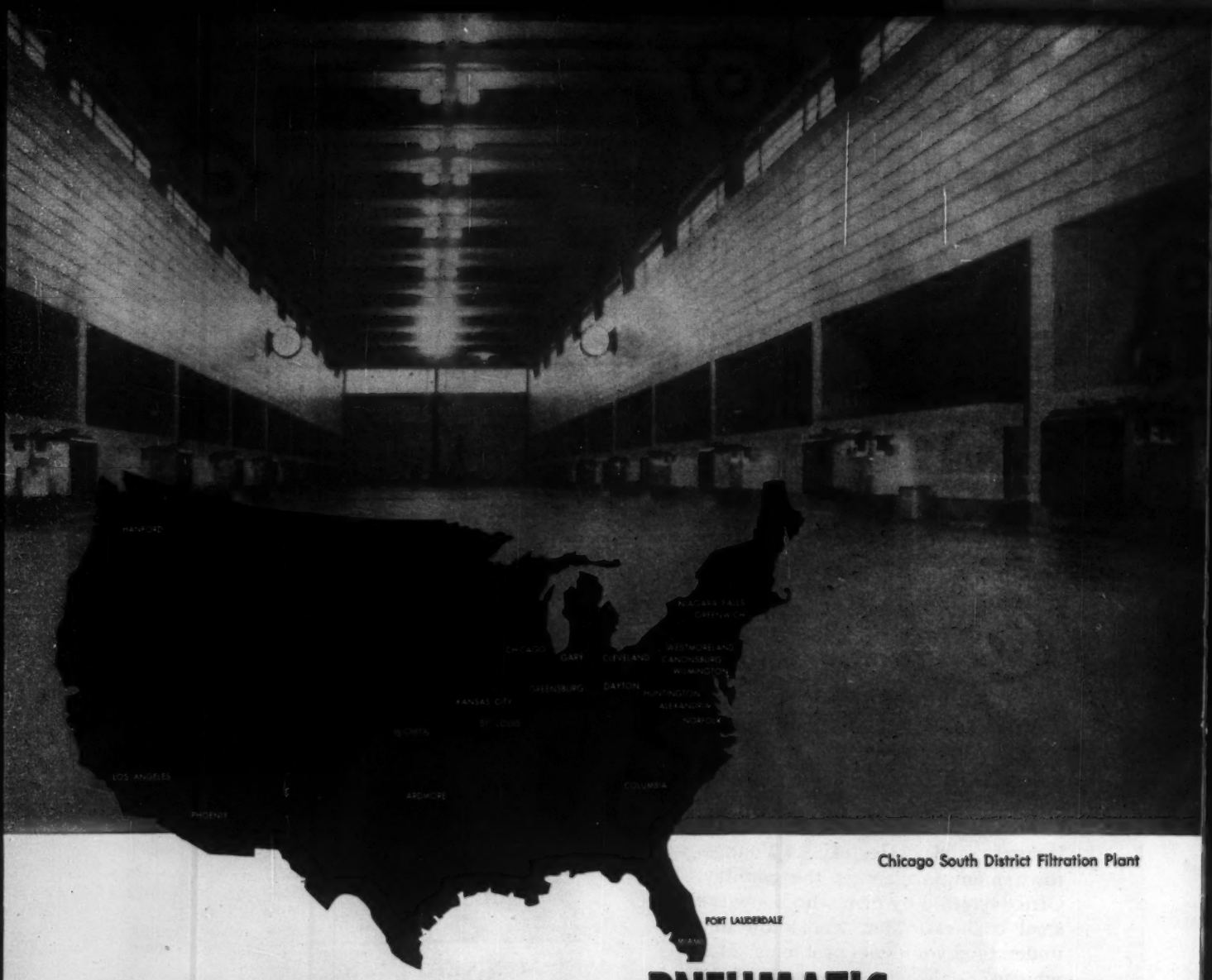

Chicago South District Filtration Plant

Years and Years Ahead in PNEUMATIC Instruments and Controls For Water Works Service

Because this equipment is specially designed for water works service, the Builders Pneumatic System is outstandingly successful in operation. Builders Pneumatic Instruments and Controls are now giving top performance on many important installations across the country, including Chicago's South District Filtration Plant, the world's first and largest pneumatically equipped plant, built in 1946.

Builders Pneumatic Meters and Controls are right for water works service in every detail — in accuracy, in range, and in materials of construction. Each system profits by our broad design and manufacturing experience . . . a "plus" service we extend to engineers to help in obtaining the correct instruments and controls for each project. Builders-Providence equipment is backed by our own nationwide organization of service specialists . . . another assurance of economical plant operation.

For a first-hand look at the advantages of Builders Pneumatic Instruments and Controls, visit one of the many installations now in service. We will be glad to help arrange such a visit for you. Write Builders-Providence, Inc., 350 Harris Ave., Providence 1, Rhode Island.

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B-I-F METERS FEEDERS CONTROLS

of wool-scouring wastes, and to the development of a chlorination process for the destruction of cyanides.

Before joining the staff of Water and Sewage Works, he was research director with the Chlorine Institute, Inc. in New York from 1935 to 1952. He had been an instructor in sanitary chemistry at Cornell University and a research chemist for Consolidated Water Company in Utica, N. Y., earlier in his career.

Men and Jobs Briefs . . .

• **Corps of Engineers—Col. Leonard L. Haseman,** recently stationed at Fort Belvoir, becomes assistant district engineer at Anchorage, Alaska . . . **Harold S. Ferrell,** last stationed at regional Camp Haugen in Japan, joins the State Department as Regional Foreign Building officer for Soty, Korea, after 15 years of service with the Corps of Engineers.

• **Careers—Louis A. Fraleigh, Jr.** is named temporary executive director of the Florida State Road Department, pending selection of a permanent director; **H. E. Lewis** becomes chief engineer and **H. W. Overstreet** is appointed deputy engineer . . . **Carl W. Larson** is named acting state architect for New York, succeeding **Cornelius J. White,** who has resigned . . . **Garrett E. Layons** is appointed director of the newly created Interstate Highway Division of the Delaware State Highway Commission.

• **Business**—Midwest Piping Co., Inc., St. Louis, Mo., elects former executive vice president **Eric A. Kerbey** as president, succeeding **A. G. Stoughton** who remains as board chairman . . . **J. G. Baillot** joins Racey, MacCallum and Associates, Ltd., consulting engineers in Montreal and Toronto.

T. M. Neibling is named vice president and general manager of Armco Drainage & Metal Products' Eastern Division, succeeding **A. O. Robertson,** now vice president in charge of sales . . . **John D. Constance,** consulting engineer in Cliffside Park, N. J., establishes a guidance consulting service for engineers seeking to qualify for a professional license.

• **Education—Col. John Anderson** is named head of the Department of Civil Engineering at The Citadel, Charleston, S. C. . . . **Waldo Schumway,** former dean, becomes provost of Stevens Institute of Technology, Hoboken, N. J.

"Our Sherman Power Diggers Are Easy to Handle and Maneuver in Tight Places"

One of the two Sherman Power Diggers owned by I. & M. Contracting Co., Bronx, New York, is shown on a trenching job for a public utility company in Long Island City.

Mr. Elio Mazella, co-owner of the contracting firm states: "Sherman Power Diggers are exceptionally good. They are easy to handle and maneuver in tight places. In comparison with former excavating methods, these diggers save us at least 70 per cent."

Sherman's speed, maneuverability and easy operation appeal to custom operators, contractors, utility companies, municipalities . . . everyone who wants the savings of mechanized excavating. Even on the smallest jobs the Sherman is practical, since it releases heavier equipment for bigger jobs . . . yet it digs in a fraction of the time and cost of manual labor.

Use the Sherman Power Digger as deep as 10 feet below ground . . . in mud, hardpan, shale, oiled roads, blacktop and stony ground. Initial cost is surprisingly low, and maintenance is simple and inexpensive. Ask your Ford Tractor dealer for an on-the-job demonstration, or write today for Bulletin No. 1418

*Designed, Engineered and Manufactured Jointly by Sherman Products, Inc., Royal Oak, Michigan. Wain-Roy Corporation, Hubbardston, Mass.

Patent No. 2-303-852
Other Patents Pending

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Brass rolled-rim spur grommets, made of *heavy* gauge metal, are *anchored* in reinforcing patches sewn on selvage sides.

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OBITUARIES

Henry Z. Pratt, Jr., 61, until recently deputy chief engineer for the New York City Board of Water Supply, died Aug. 10. He was graduated from Brooklyn Polytechnic Institute, in 1915 with a degree in civil engineering. During the seven years that followed, he held positions as engineering instructor at the College of Hawaii, party chief for the Erie Railroad, and plant engineer for Vulcan Iron Works.

Pratt, who also worked on subway construction with the New York Board of Transportation, joined the Board of Water Supply in 1922. He was appointed deputy chief engineer in 1952 and while in that capacity supervised preparation of engineering data and exhibits that were used by New York City in its successful petition to the Supreme Court for the further right to draw from the New York watershed of the Delaware River.

David P. Appell, 70, vice-president of George A. Fuller Co., New York City, died Aug. 8. He began his construction career with William Henderson Co., in 1902 after graduation from New York's Cooper Union Institute. Later, he worked for Murphy Construction Co., and Emerson-Inis Co. He joined Fuller in 1918, became chief estimator in 1924 and vice-president in 1930. Appell organized and supervised many important construction jobs, including the Red Hook and Vladeck Housing projects in New York City and the $100-million Dodge-Chicago plant.

Oscar H. Koch, 65, a civil and municipal engineer and former director of public works for Dallas, died Aug. 7. He was a partner in the Dallas engineering consultant firm of Koch & Fowler, which has supervised some of the largest public projects in Texas including the current $22.5-million Dallas County road-building program and the $15-million construction of Camp Bowie at Brownwood.

Koch received his civil engineering degree from the University of Missouri in 1910.

Gerald F. Alcorn, 47, construction engineer for the Pulp Division of the Weyerhaeuser Timber Co., died Aug. 5 in Tacoma, Wash. He was graduated from the University of Washington in 1908 and later served Weyerhaeuser as manager and superintendent of its Everett and Longview, Wash., mills. He became construction engineer in 1950.

The world's most powerful tractor _with Torqmatic Drive

TWIN POWER TRAINS—made possible by Allison TORQMATIC DRIVES—make Euclid's new TC-12 the world's most powerful crawler sold today.

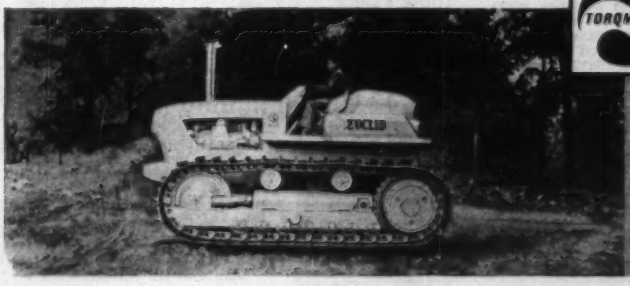
This twin-engine giant gets 388 horsepower from two GM Diesels—uses a pair of TORQMATIC Converter-Transmission teams to turn that power into more than 100,000 pounds drawbar pull and provide a smooth, steady flow of power for all job requirements.

But for all its power the TC-12 is easy to run for it has no master clutch.

The driver changes speeds with finger-tip hydraulic control at full power, instantly shifts from forward to reverse, spins his tractor in its own length, maneuvers with no more than a twist of the wrist.

And he gets more work done per day because with a top speed of 730 feet a minute the TC-12 doesn't crawl—it really moves fast.

You can build or buy a better product by specifying TORQMATIC DRIVES for your hard-working gasoline- or Diesel-powered equipment. Ask your equipment dealer or manufacturer for more information or write direct to Allison Division of General Motors, Box 894E, Indianapolis 6, Indiana.



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TORQMATIC DRIVES

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

Mass., Fall River—BA 8/29—City, City Hall, incinerator equip. $100,000. Plans deposit $25, refundable. Extended date. William W. Drummey, 80 Boylston St., Boston, archt. CD 7/28.

† **Me., Bangor**—BULK STORAGE FACILITIES—BA On Or About 9/7—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., bulk storage facilities, Dow Air Force Base, ENG-19-016-56-17. $50,000-$75,000.

† **Mass., Falmouth**—TECHNICAL LABORATORY—BA On Or About 9/8—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, technical laboratory, addns. to flight simulator bldg. and rocket storage bldg. (Unit B), Otis Air Force Base, ENG-19-016-56-18. $200,000-$300,000. Plans deposit $20.

† **Mass., Chicopee Falls**—ROCKET STORAGE CHECK-OUT, etc.—BA On Or About 9/9—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, rocket storage check-out and assembly bldg., Westover Air Force Base, ENG-19-016-56-19, $25,000-$50,000.

† **New Hampshire, Connecticut, Massachusetts**—FACILITIES—BA On Or About 9/13—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., facilities at Stoddard, N. H. 1.5 mi. northwest of town of Stoddard on Pitcher Mt.; Middletown, Conn., approx. 5 mi. south of Middletown on Round Hill; New Salem, Mass., 1.1 mi. northwest of town of New Salem at former fire tower site on Poor Farm Hill, ENG-19-016-56-16. Plans deposit $10.

▲† **Me., Bangor**—AIRFIELD PAVEMENTS—BA On Or About 9/20—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., airfield pavements and runway and taxiway lighting, FY-56, Dow Air Force Base, ENG-19-016-56-24. Over $6,000,000. Plans deposit $25.

HEAVY CONSTRUCTION—LB & CA

MAINE—State Hy. Comm., State House, Augusta,
A. P. Wyman, Inc., Waterville, Md. LB $351,078. b. conc. 3.542 mi. F.A. Secondary Proj. S0210 (6), Augusta. Bids Aug. 10. CD 8/4.

Turner & Breivogel, Inc., Falmouth Heights, Mass. LB $118,947. est. $150,000. repairs and reconstr. stone mound groins, beach and bank restoration, Barnstable, MASSACHUSETTS. Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass. Bids Aug. 9. CD 8/1.

James A. Munroe & Sons, 160 N. Washington St., North Attleboro, Mass. LB $102,972. est. $100,000. laying about 17 mi. water mains, HARWICH, MASS. Town, Bd. Water Comrs., Water Pumping Station, Harwich, Mass. Bids Aug. 8. CD 8/3.

Palmer-Tarinelli Constr. Co., Inc., 144 Islandbrook Ave., Bridgeport, Conn., LB $87,391, est. $90,000. storm and sanitary sewers, BRIDGEPORT, CONN. City, City Hall, Brigeport, Conn.

BUILDINGS—LB & CA

▲ **H P. Cummings Constr. Co.**, 14 Prospect St., Ware, Mass., CA, $1,343,333, WOMEN's DORMITORY, BURLINGTON, VT. University of Vermont and State Agricultural College, Burlington, Vt. Bids Aug. 13. CD 8/9, under LB.

J. H. Hogan Co., 78 Butler St., New Haven, Conn. LB, $671,600, CITY GARAGE, MAINTENANCE SUPPLY HOUSE and WAREHOUSE, Middletown Ave. and Fawn St., NEW HAVEN, CONN. City, Richard C. Lee, mayor, City Hall, New Haven, Conn. Bids Aug. 9. CD 7/29.

Town, Bd. Educ., Newtown Center, Newtown, Conn., rejected bids July 22, ELEMENTARY SCHOOL, Sandy Hook, NEWTOWN, CONN. Will re-advertise.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

† **Pa., Johnstown**—PARKING AREA—BA 8/30—U. S. Property & Fiscal Office for Pa., Annville Rd. No. 2, parking area and access roads leading to parking area and chain link fence located between existing storage bldg. and squadron admin. bldg., PNG. Plans deposit $5.

† **Md., Bethesda**—BA 8/31—General Services Admin., P. Bldgs. Service, 19 and F Sts. N. W., Wash. 25, D. C., surface drainage and light standards, guards at National Institutes of Health.

N. Y., New York—BA 8/31—Dpt. P. Wks., Municipal Bldg., Zone 7, Contr. 4A, Conner Street Pumping station and force main, structures, and equip.; Contr. 4B, ventilating; Contr. 4C plumbing; Contr. 4D electrical work for the Hunts Point Pollution Control Proj., Bronx Boro. Plans deposit $25. CD 11/21/44.

New York—BA 9/1—Office Henry A. Cohen, dir. Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, soil explorations and foundation investigations at various sites on Wantagh-Oyster Bay Expressway, Contr. Spec. SM-78, Nassau Co. Plans deposit $5; adv. ENR 8/25.

▲† **New York**—AAA FACILITIES—BA 9/7—U. S. Eng., 111 E. 16 St., New York Zone 3, AAA facilities, Cambria, $500,000-$1,000,000. Greenberg & Ames, 303 Fourth Ave., New York, Zone 10, archts. CD 8/5.

HEAVY CONSTRUCTION—LB & CA

Alco Products Inc., 30 Church St., New York 7, N. Y. LB $266,664. furnishing, del. 16 sets draft tube pier noses for Barnhart Island Power Plant, Spec. No. PA-5-12502, St. Lawrence Contr. No. P21, NEW YORK. Power Authority of the State of New York, 270 Broadway, New York 7, N. Y. Bids Aug. 11. CD 7/14.

† **Harmel Constructors, Inc.**, 60 E. 42 St., New York 17, N. Y. CA $213,765. jet fuel storage and distr. sys., Naval Air Station, NOY 71169, NIAGARA FALLS, N. Y. P. Wks. Office, Third Naval Dist., 90 Church St., New York 7, N. Y. Bids May 26. CD 5/13.

NEW JERSEY—State Hy. Dpt., 1035 Parkway Ave., Trenton,
Warren Paving Co. Inc., Stewartsville, N. J., LB $109,575, (4 bidders) 2.178 mi. Brass Castle Rd. from State Hy. 24 to Hartman's Corners Fed. Sec. Proj. Aid Proj. S-205 (1), Washington Twp., Warren Co. Bids Aug. 9. CD 7/22.

NEW JERSEY—State Hy. Dpt., 1035 Parkway Ave., Trenton,
Pangia Constr. Co., Atco, N. J., LB $114,942. 2.096 mi. approach road to State Mental Hospital at Ancora and imprv. intersection at U. S. Route 130, Winslow Twp., Camden Co. Bids Aug. 9. CD 7/20.

NEW JERSEY—State Hy. Dpt., 1035 Parkway Ave., Trenton,
Central Constr. Co. Inc., Clark, N. J., CA $799,191 partial repaving 8.706 mi. U. S. Route 22 (Sections 4J and 9H) from Westfield to Washington Aves. F-178 (12), Union and Somerset Counties. Bids July 21, awarded Aug. 10. CD 8/1, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton,
N. J.—Franklin Contg. Co., 12 Central Ave., Newark, N. J., CA $1,009,525, wid'n., dualization 1.236 mi. Route 4 (Sections 5C and 4F) from West Saddle River Rd. to Route 17, Fed. Proj. U-197 (1), Fairlawn and Paramus, Bergen Co.;
N. J.—Johnson, Drake & Piper, Inc., 86 Trinity Pl., New York, N. Y., CA $2,416,737, dualization 2.708 mi. Route 17 (Section 9B) from Ramapo River to Franklin Turnpike in Mahwah Twp. and Ramsey, Fed. Proj. U-102 (7) Bergen Co. Bids July 28, awarded Aug. 10. CD 8/1, under LB.

State Hy. Dpt., State Hy. Office Bldg., 1035 Parkway Ave., Trenton, N. J., cancelled bids to have been opened Aug. 30, underground structures for traffic signal systems (1955-1956 Contr. 1), NEW JERSEY. Will re-advertise. CD 8/12.

† **Boro Plumbing & Heating Co.**, Causeway, South River, N. J. CA $110,777. plumbing, heating, process steam systems and underfloor exhaust systems in Bays A, B, and C, Bldg. SS-6 at Raritan Arsenal, IFB ORD 28-024-55-401, RARITAN, N. J. ORD Corps., Raritan Arsenal, Metuchen, N. J. Grand total $378,384. CD 12/21/51, under Public Buildings;
Willard Dunham Constr. Co., Fords, N. J. CA $92,331. electrical work in Bays A, B, and C, Bldg. SS-6, IFB ORD 28-024-400 (Raritan, N. J.);
Rule Constr. Co., 21 Washington St., New Brunswick, N. J. CA $86,976. alterations to Bldg. SS-6 for maintenance division shop, IFB ORD 28-024-55-399 (Raritan, N. J.);
MacLeod Co., Box 452, Sharonville, O. CA $88,300. airblast room in Bldg. SS-6, (Raritan, N. J.).

PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
The Interstate Amiesite Corp., Delaware Trust Bldg., Wilmington, Del. CA $503,122. wid'n., overlay 93,629 ft. existing road, with crushed aggregate base, bit. surf. 22 ft. wide, South Beaver and Chippeway Twps., TR 251, Beaver Co. CD 7/26, under LB.

Keystone Engineering Corp., 1813-15 Callowhill St., Phila., Pa. LB $107,250. electrical work for utility bldg. and toll plaza at Lehigh Valley interchange, northeastern exten. at Rte. 22, By-Pass (Contr. No. 552), Allentown, Lehigh Co., PENNSYLVANIA. Pennsylvania Turnpike Comn., 11 N. Fourth St., Harrisburg, Pa. Bids Aug. 10. CD 7/21.

▲ **Leo Butler Co.**, 9217 51 Ave., College Park, Md. LB $5,030,513. Patapsco Tunnel Canton Land Section Contr. PT-112, MARYLAND. State Rds. Comn., 108 E. Lexington St., Baltimore 2, Md. Bids Aug. 11. CD 7/19.

† **Dominion Contractors, Inc.**, 100 W. 22 St., Baltimore, Md. LB $640,523. Special AAA facilities, 4 underground missile storages, 2 barracks, addns. to present structures, site imprvs., Site W-05-C1, ENG-18-020-56-4, near Granite, Baltimore Co., MARYLAND. U. S. Eng., P. O. Box 1715, Baltimore 3, Md. Bids Aug. 10 CD 8/3.

Counties Constr. Co., Ninth and Sedgeley Aves., Phila. 40, Pa. LB $286,644. Contr. No. 20, conduit line and manholes, BALTIMORE, MD. City, Bureau Mechanical & Electric Services, 320 Municipal Bldg., Baltimore 2, Md. W. Rayner Straus, c/o owner, mech.-elec. engr. CD 5/10.

Arundel Constr. Co., 420 E. Eager St., Baltimore 5, Md. LB $328,027. Hy. Contr. 1367 sheet asph. resurf., BALTIMORE, MD. City, Bureau Hys., 303 Municipal Bldg., Baltimore 2, Md. Bids Aug. 10, CD 8/4;
P. Flanigan & Sons, Inc., 2504 Loch Raven Rd., Baltimore 18, Md. LB $103,580. Hy. Constr. 1371 sheet asph. resurf. (Baltimore, Md.);
Ralph Marcantoni, 319 S. Exter St., Baltimore 2, Md. LB $103,674. Hy. Contr. 1369, c. conc. paving. (Baltimore, Md.).

M. Cain Co., Inc., 3315 8 St. N. E. Wash., D. C., LB, $109,216 (7 bidders) stormwater sewer, Buchanan St. N. E. between 7 and 10 Sts., WASH., D. C. D. C. Govt., Dpt. Sanitary Eng., 499 Pa. Ave. N. W., Wash., D. C. Bids Aug. 10. CD 8/5.

BUILDINGS—LB & CA

District Leasing Corp., 97-27 64 Rd., Forest Hills, N. Y., Owner Builds, $390,000. 6 story APARTMENT 250-262 E. 38 St., BROOKLYN, N. Y. CD 6/22.

Pumar Development Corp., 16 Court St., Brooklyn 2, N. Y. Owner Builds, $420,000. 6 story APARTMENT, 220 Berkeley Place, BROOKLYN, N. Y. CD 7/22.

Oro Building Corp., 154 Central Ave., Brooklyn 21, N. Y. Owner Builds, $555,000. 37 HOUSES at 8667-87 25 Ave., BROOKLYN, N. Y. Kallich & Weinstein, 161 Remsen St., Brooklyn 2, N. Y., archts.

Lenox Estates, Inc., 690 Flatbush Ave., Brooklyn 25, N. Y. Owner Builds, $697,000. 6 story APARTMENT 261 Lenox Rd., BROOKLYN, N. Y. CD 5/25.

John W. Cowper Co., Inc., Sidway Bldg., Buffalo, N. Y. LB $648,700. (2 bidders) general contract LAUNDRY, Buffalo State Hospital, BUFFALO, N. Y. Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Aug. 4. CD 7/18.

RHR Holding, Inc., c/o Julius Fishkind, 161-19 Jamaica Ave., Jamaica, N. Y. Owner Builds, $750,000. 6 story APARTMENT. Victor Place, south of Judge St., JACKSON HEIGHTS, N. Y. CD 6/28.

▲ **Walsh Constr. Co.**, 122 E. 42 St., New York 17, N. Y. CA Est. $1,000,000. Unit 3, to house Lane Department STORE in Center at Union Turnpike, LAKE SUCCESS, N. Y. Lake Success Shopping Center, c/o Peck & Shactman, 19 W. 44 St., New York 36, N. Y.

(continued on page 62)

PROJECTS COVERED

By Size

Construction projects here reported cover the Unite States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings, $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction
(In order of Listings)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildnigs
Industrial Buildnigs
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

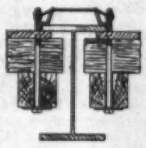
For additional reports see Construction Daily.

5 SUPERIOR WAYS OF HANGING FORMS FROM STEEL BEAMS AND GIRDERS

(NOT FIREPROOFED)

Especially designed to meet field conditions on BRIDGE SUPERSTRUCTURES

Standard Coil Hanger Frame

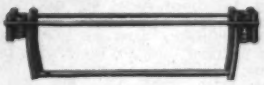


When hanging forms where specifications do not permit any hanger wire to be exposed after stripping, use Superior *Standard* Hanger Frames. Detail at left shows their use with double ledgers, ½" coil bolts, and flat washers. Total safe load on both bolts is 10,000 lbs., or 5,000 lbs. per bolt.

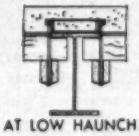
Plate Hanger Frame

FOR ADJUSTMENT FROM TOP OF DECK

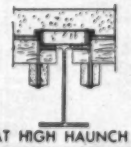
The Plate Hanger Frame, shown at left, has metal plates with a punched hole instead of wire coils. The Coil Bolts are passed through the holes and secured from above with coil nuts. The plates provide adequate bearing for the nuts, which being square will not turn when the bolt is removed. The installation and necessary adjustment to bring the deck forms tight against the flange are from above the deck. The total safe load on both coil bolts is 10,000 lbs., or 5,000 lbs. per bolt.



Special Hanger Frame

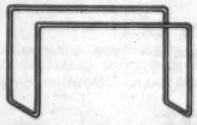


AT LOW HAUNCH

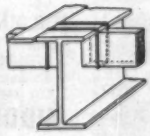


AT HIGH HAUNCH

The design of certain bridge superstructures allows for the permanent deflection of the beams or girders due to the pre-calculated dead load. This deflection is compensated by a concrete haunch on the upper flange, which varies in depth. Superior *Special* Coil Hanger Frames were developed to meet this field condition, at the same time avoiding any exposed hanger wire. The extent to which the ½" Coil Bolts are threaded into the coils allows for these varying haunch depths from maximum to zero. (See detail at left.) Total safe load per frame is 10,000 lbs., or 5,000 lbs. per ½" bolt .

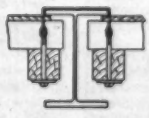


Wire Beam Saddle



Wire Beam Saddles are used to hang centering joists from structural steel beams when the beams are not fireproofed with concrete. On non-fireproofed structures the load is determined by the allowable spacing of centering joists rather than the capacity of the hanger. Available in three gauges and sizes as required. Will carry safely, total loads of 2,500 lbs. to 6,000 lbs. Layouts and estimates will be sent upon receipt of plans or quantities. No obligation.

Coil Beam Saddle



Superior Coil Beam Saddles are used, as shown at left, where hanger wires may be cut after stripping the forms. The Coil Bolts allow for any variation in lumber and flange thickness and tightening the bolts pulls the forms tightly against the flanges. Forms are easily stripped. Safe load is 6,000 lbs. per saddle, or 3,000 lbs. for each ½" Coil Bolt. Coil Beam Saddles are also furnished for ¾" and 1" bolts.

WORKING PARTS (Bolts and washers) are returnable. Layouts and estimates for Superior Hangers are available without obligation.

SUPERIOR CONCRETE ACCESSORIES, INC.

4110 Wrightwood Avenue, Chicago 39, Illinois

New York Office
1775 Broadway, New York 19, N. Y.

Pacific Coast Plant
2100 Williams St., San Leandro, Calif.

NEW ALL-WELDED BRIDGE SAVES 20% ON STEEL

...cuts structural weight by 6000 tons

AN estimated 20% less steel is needed on this skyway than would have been required for riveted construction. This saving not only has cut cost of structural steel but has made further reductions in cost of foundations since the underfooting in the area is extremely poor.

The design is such that welding is largely done in the shop by low-cost automatic Lincolnweld or semi-automatic Manual Lincolnweld submerged arc process.

The bridge is a composite design in which the concrete slab of the deck is supported by girders. The girders have shear connections welded to the upper flange of the beams. As a result, the slab acts as an integral unit with the supporting beams and girders.

Fabricators are the Independent Iron Works and Judson Pacific-Murphy Corporation of Oakland, California.

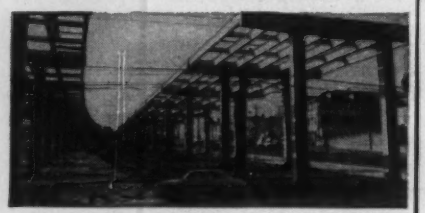


Fig. 1. Divided highway two-column bent for a street overpass.

Fig. 2. Welding diaphragm to connecting plate at column bent.

STUDIES IN STRUCTURAL ARC WELDING

Latest data available to designers and engineers by writing on your letterhead to

THE LINCOLN ELECTRIC COMPANY
Dept. 2306 • Cleveland 17, Ohio

The World's Largest Manufacturer of Arc Welding Equipment

(continued from page 60)

Sumner Schein, 270 Huntington Ave., Boston, Mass., archt.

E. A. K. Realty Corp., 285 Madison Ave., New York 17, N. Y. Owner Builds. $941,000. APARTMENT, 223-229 East 46 St., NEW YORK, N. Y. CD 6/21.

▲ Revere Hall, Inc., 910 Sheridan Ave., New York, N. Y., Owner Builds, $1,300,000. 16 story APARTMENT 1453-1551 Second Ave. and 241-347 E. 80 St., NEW YORK, N. Y. CD 7/25.

▲ Terminal Constr. Co., State Hy. 17, Wood-Ridge, N. J. CA $2,082,348. general contract, Clinton Pl. Junior High SCHOOL, NEWARK, N. J. Bd. Educ., Admin. Bldg., 31 Green St., Newark 2, N. J. Bids July 22, awarded Aug. 9. Grand total $2,971,293. CD 6/28.
Elizabeth Iron Works, Inc., Green Lake, Elizabeth, N. J. CA $448,000. structural steel, misc. metal work. (Newark, N. J.);
John H. Cooney, Inc., 210 N. Fourth St., Harrison, N. J. CA $440,945. heating and ventilating work. (Newark, N. J.).

P. Bornstein & Son, 2027 Arch St., Phila., Pa. LB $464,290. general constr., CHAPEL and AUDITORIUM at Phila. State Hospital, PHILA. PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids Aug. 10. CD 7/15.

Anchor Constr. Corp., 6 W. 23 St., Baltimore 18, Md. CA $200,000. 1 story, masonry MANUFACTURING BLDG. North Point Rd. and P. R. R. Crossover, ESSEX, MD. A. T. & B. M. Antiliz, 5426 Springlake Way, Baltimore 12, Md.

Westmont Building & Investment Co., Kelly Bldg., Rockville, Md. Owner Builds. $390,000. 30 brick detached HOMES, ROCKVILLE, MD. J. d'Epagnier, 1004 Ripley St., Silver Spring, Md., archt.

Bethlehem Steel Co., Sparrows Point, Md. Owner Builds. $706,650. STORAGE BLDG., SINTERBIN BLDG., freight elevators, ORE and SINTERBIN BLDG., 3 CONVEYOR JUNCTION HOUSES, 4 CONVEYOR GALLERIES, MACHINERY HOUSE, SPARROWS POINT, MD.

Young & Crary, 1312 62 Ave., Hillside, Md., LB, $477,572, demountable SCHOOLS at 7 different locations, WASH., D. C. D. C. Govt., Director Bldgs. & Grounds, 499 Pa. Ave. N. W., Wash., D. C. Bids Aug. 9. CD 8/5.

SOUTH

HEAVY CONSTRUCTION—BA

† Va., Portsmouth—WATERPROOFING BLDGS. — BA 8/30—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, waterproofing Bldgs. 104 and 105, Naval Hospital, NOY 89526, Spec. 47385. Plans deposit $10.

† Louisiana—BA 8/31—U. S. Eng., foot of Prytania St., New Orleans, constr. standard board revetment Red River, 100,000 cu. yd. grading, 3,800 squares lumber mattress, 17,375 tons stone, 1,665 tons gravel, Bossier Parish, Inv. 56-21. CD 6-26-46.

† Fla., Eglin Air Force Base—RUNWAY, etc.—BA 9/1—U. S. Eng., Grant St., Mobile 7, Ala. strengthening and marking existing runway and constr. blast pad at each end of Auxiliary Field No. 3.

† S. C., Myrtle Beach—PILOT TRAINING BLDG.—BA About 9/28—U. S. Eng., 31 Customhouse, Charleston, proficiency pilot training bldg., Myrtle Beach Air Force Base, ENG 38-081-56-6.

BUILDINGS—BA

Ky., Frankfort—FACTORY—BA 8/31—General Shoe Co., Barrett Ave., factory, $250,000, Oberwarth & Livingston, 301 W. Second St., archts.

▲ Ga., Jeffersonville — SCHOOLS — BA 9/13 — Georgia School Bldg. Auth., 41 Exchange Pl. S.E., Atlanta, Jeffersonville Vocational School; Jeffersonville Elementary and High School; Mount Olive Elementary School; Smith Elementary School; Antioch Elementary School. Plans deposit $50 each. Southern Eng. Co. & Harry R. Roos, Jr., 1000 Crescent Ave. N.E., Atlanta, archts. Bids 6/23 rejected. CD 6/27, under LB.

La., Scotlandville—DORMITORY—BA 9/13—State Bldg. Auth., Capitol Bldg., Baton Rouge, girls' dormitory at Southern University Proj. E 4 SU-4. Plans deposit $40. H. L. Land, 1104 Ouachita National Bank Bldg., Monroe. CD 8/10, under LB.

Ga., Lawrenceville—SCHOOLS—BA 9/15—Georgia School Bldg., 41 Exchange Pl. S.E., Atlanta, West Gwinnett High School; Hull Elementary School addn, Stevens & Wilkinson, 157 Luckie St. N.W., Atlanta, archts.; Sugar Hill Elementary School, and Harmony Elementary School, Gregson & Ellis, 622 Mortgage Guarantee Bldg., Atlanta, archts. Plans deposit $50 each.

Ga., Dawson—SCHOOLS—BA 9/20—Georgia School Bldg. Auth., 41 Exchange Pl. S.E., Atlanta, Martin Elementary School (colored); Helen Gurr Elementary School (colored); Dunbar Elementary School (colored); Northside Elementary School (colored); County Colored High School; mechanical alterations to Bronwood Elementary, Graves Elementary, Parrott Elementary and Sasser Elementary Schools; constr. Dawson Elementary and Terrell High School addns. Plans deposit $50 each. Edward V. Jones & Assocs., Royal Bldg., Albany, archts.

† Fla., Lakeland—TRAINING CENTER—BA On Or About 9/22—U. S. Eng., P.O. Box 4970, Jacksonville, Zone 1, U. S. Army Reserve Training Center, Serial No. ENG-08-123-56-16.

Ga., Lawrenceville—SCHOOLS—BA 9/22—Georgia School Bldg., 41 Exchange Pl. S.E., Atlanta, South Gwinnett High School, Snellville Elementary School addn. and remodeling, Stambaugh & Jett, 306 Rhodes Bldg., Atlanta, archts.; Central Gwinnett High School, Renwick-Hooper High School and Dacula Elementary and Lilburn Elementary Schools addns. David S. Cuttino, Jr., & Assocs., 1001 Mortgage Bldg., Atlanta, archts. Plans deposit $50 each.

BUILDINGS—SLC

▲ Ky., Owensboro—FACTORY—General Electric Co., River Rd., Schenectady, N. Y., soon lets contract, factory, Lennox & Matthes, 648 E. 38 St., Indianapolis, Ind., archts. CD 7/25.

HEAVY CONSTRUCTION—LB & CA

WEST VIRGINIA—State Rd. Comn., 1800 Washington St. E., Charleston,
Andersons, Inc., and Standard Asphalt & Tar, 1500 Penna Ave., Charleston, W. Va. LB $235,395. (2 bidders) b. conc. bottom and wearing course 8.611 mi. Chestnut-Hickory Chapel Rd. (W.Va. 2), F. A. Proj. F 306 (18), Mason Co. Bids Aug. 9. CD 8/1.

WEST VIRGINIA—State Rd. Comn., 1800 Washington St. E., Charleston,
W. Va.—R. B. Gay Co., 3437 Courtland Ave., Roanoke, Va. LB $285,912. (5 bidders) Fishers Ford Bridge 1970 and approaches (W.Va. 9) two 73 ft. three 92 ft. continuous I-beam spans on concrete substructure, grading, draining, b. conc. wearing course 1.308 mi., F. A. Proj. S 107 (3), Morgan Co.;
W. Va.—Paul Price & C. E. Weatherall Co., 3114 Third St., Huntington, W. Va. LB $183,526. (7 bidders) north approach 0.707 mi. Winfield Bridge US 35 grading, draining, traffic bound base, wearing course, F. A. Proj. F 232 (3), Putnam Co. Bids Aug. 9. CD 8/1.

FLORIDA—State Rd. Dpt., Tallahassee,
R. H. Wright & Son, Box 781, Fort Lauderdale, Fla., CA $556,951. maint. of traffic; grading roadway; Type 1-A surf. tr., b. conc. surf. course, Type I; storm sewers, etc. 2.035 mi. St. Rd. 805, St. Proj. Job No. 9305-104, Palm Beach Co. Bids July 28, awarded Aug. 8. CD 8/3, under LB.

Chicago Bridge & Iron Co., 332 S. Michigan St., Chicago, Ill., CA $119,500. Proj. 5434-3, elevated water tank, OCALA, FLA. City, City Hall, Ocala, Fla. Bids Aug. 1. CD 7/12.

† Croft-Mullins Electric Co., Inc., P.O. Box 113, Macon, Ga. CA $95,697. alterations electrical distr. sys., utilities for wing hangars, Pinecastle Air Force Base, ENG. 08-123-55-100, ORLANDO, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. CD 5/24.

† Building Service Co., West Point, Miss. CA $79,960. constr. misc. storage facilities, storage shed for motor pool, storage area for air installations office and salvage area, Columbus Air Force Base, COLUMBUS, MISS. U. S. Eng., 2301 Grant St., Mobile, Ala.

† U. S. Eng., foot of Prytania St., New Orleans, La. rejected bids Aug. 3, constr. Catahoula-Fish Island enlargement, 170,000 cu. yd., St. Martin and Iberia Parishes, Inv. 56-8, LOUISIANA. LB $164,300. CD 8/10, under LB.

Ruckstuh & Fick, Inc., 2703 Period St., New Orleans, La. LB $182,610. (2 bidders) 2 rein.-con. control structures with appurtenant gates and pipe lines at intersection of Bertrands Canal and headquarters canal, Cameron Parish, LOUISIANA. State Dpt. P. Wks., State Capitol, Baton Rouge, La. Bids Aug. 8. CD 8/3.

George Consolidated, 7225 Culmore St., Houston 17, Tex. LB. $171,000. sewerage sys. imprvs., incl. sanitary sewer ejector station, sewage treatment plant, ST. MARTINVILLE, LA. Town, District No. 1, St. Martinville, La. Bids Aug. 9. CD 7/22.

▲ KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort.
George M. Eady Co., 340 Byrne St., Louisville, Ky. CA $1,460,218. 1st section Expressway 4 mi. between Woodbine and Gaulbert, Jefferson Co. CD 8/11, under LB.

BUILDINGS—LB & CA

Southern Builders, Inc., Box 1850, Shreveport, La. CA $750,000. SHOPPING CENTER in Madison Park Subdivision, SHREVEPORT, LA. Wingerten Supermarket, c/o contractor.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

† Illinois—AAA HOUSING FACILITIES—BA 9/7—U. S. Eng., 475 Merchandise Mart, Chicago 54, addnl. special AAA housing facilities at Sites C-80 and C-81 near Arlington Heights, Cook Co. incl. one 9,500 sq. ft. group headquarters bldg.; one 6,800 sq. ft. bachelor officers quarters; one 3,200 sq. ft. battery headquarters bldg.; one 6,700 sq. ft. recreation bldg.; four 5,600 sq. ft. each enlisted mens barracks. ENG 11-032-56-7. Plans deposit $50.

Ind., Indianapolis—BA 9/8—Bd. Sanitary Comrs., Indianapolis San. Dist., 421 N. Pennsylvania St., Contr. 55-S-23-MH, plant roads; Contr. No. 55-S-24-MH, elevated steel water tank; Plans deposit $25 each. Contr. No. 55-S-25-MH, sludge thickeners and appurtenances. Plans deposit $100. Moore & Heger, 810 No. New Jersey St., engrs. CD 5/5/53.

BUILDINGS—BA

▲ Mich., Rochester—SCHOOL—BA 8/30—Bd. Educ., Community Schools, Lewis B. Arscott, secy., 80,000 sq. ft. high school, $1,200,000. Plans deposit $75 refundable. H. E. Beyster & Assoc., 700 Griswold Bldg., Detroit, Zone 26, archts. CD 3/3/54.

O., Parma—SCHOOL—BA 9/2—Bd. Educ., addn., remodel Broadview Grade School. Plans deposit $25 for general work; $20 each for electric, and heating, ventilating plumbing, Fulton, Krinsky & DelaMotte, 6014 Euclid St., Cleveland, archts. CD 5/11/53.

O., Columbus—EMPLOYEES' TRAINING CENTER—BA 9/7—State Dpt. Mental Hygiene & Correction, Dr. John D. Porterfield, dir., State Office Bldg., employees' training center and kitchen laboratory, Columbus State School. CD 12/18/52.

O., Lorain—SCHOOL—BA 9/7—Bd. Educ., 1020 Seventh St., Charleston Elementary School, $400,000-$500,000. Plans deposit $30 for general; $25 for heating, ventilating and plumbing; $25 for electrical. Fulton, Krinsky & Dela Motte, 6014 Euclid Ave., Cleveland, Zone 3, archts. CD 6/22/50.

▲ Mich., Big Rapids—SCIENCE BLDG.—BA 9/8—State, A. N. Langlus, dir., State Bldg. Dpt., Lewis Cass Bldg., 300 S. Walnut St., Lansing, 3 story, rein.-con. 68x279 ft. masonry science bldg. Ferris Institute, $1,000,000. Roger Allen & Assoc., 1126 McKay Tower, Grand Rapids, archts. CD 11/24/54.

O., Coshocton—HOSPITAL—BA 9/20—Coshocton County Hospital Bd., W. B. Sauer, secy., Court House, Coshocton County Memorial Hospital. Plans deposit $50. Dan A. Carmichael Jr., 5 E. Long St., Columbus, archt. CD 11/10/53.

HEAVY CONSTRUCTION—LB & CA

R. B. Stout Expert Lawn Service, 1285 Cleveland-Massillon St., Akron, O. CA $99,163. est. $100,082. finishing grading, roadway and related work at Kent pumping station, AKRON, O. City, Leo G. Walter, secy. dir., Municipal Bldg., Akron, O. CD 12/10/43.

Vogt-Conant Co., 1585 E. 40 St., Cleveland 3, O. LB $83,000. est. $90,000. bridge over Ridge Rd. exten. present clearance from 40 to 54 ft., BROOKLYN, O. New York Central R.R., 466 Lexington Ave., New York, N. Y.

Theodore Buesching Constr. Co., Inc., 1001 E. Berry St., Fort Wayne, Ind. CA $207,412. sewage treatment plant, imprv. program; CA $77,452. 2 sewage pumping stations, VAN WERT, O. City, Van Wert, O. Awarded July 29. CD 11/8.

▲ INDIANA—Indiana Toll Road Comn., 309 W. Washington St., Indianapolis, Zone 4.

H. G. Christman Co., 850 S. Fellows St., South Bend, Ind. CA $2,217,604. toll plazas and paving in Hammond, Chesterton, Westville, LaPort. Bids July 27, awarded Aug. 4. CD 8/1, under LB.

Meshberger Stone Co., Columbus, Ind., CA $182,020, aircraft parking apron at Weir Cook Municipal Airport, INDIANAPOLIS, IND. Bd. Aviation Comrs., City Hall, Indianapolis, Ind. CD 11/11/53;

A. T. Gravelle, 3815 Massachusetts Ave., Indianapolis, Ind., CA $75,585, entrance road; CA $144,203, ramp and taxiway pavement (Indianapolis, Ind.).

▲ ILLINOIS—Div. Hys., Centennial Bldg., Springfield, Ill.—Allied Structural Steel Co., 20 N. Wacker Dr., Chicago 6, Ill., LB $2,413,048, furnish structural and cast steel for 10 spans of bridge over Illinois River at Peoria on F.A. 9, Peoria Co.;

Ill.—McCann & Co. Inc., 812 Reisch Bldg., Springfield, Ill., LB $95,843, portion of substructure (3 piers and 1 abutment) for bridge over Ill. River at Peoria, F.A. No. 9, Peoria Co.;

Ill.—C. E. Burgett Constr. Co., R.F.D. 1, W. Mound Rd., Decatur, Ill., LB $107,681, 3-span beam bridge over Little Wabash River and 0.31 mi. gravel or crushed stone surf. course, FA.S. 706, Wayne Co. Bids Aug. 9. CD 7/27.

▲ ILLINOIS—Div. Hys., Centennial Bldg., Springfield, Ill.—Arrow Road Constr. Co., Forest Park, Ill., LB $142,837, intermittent bit. resurf., and concrete pavement patching 6.82 mi. Ill. 34, U. S. 45, Saline, Franklin, Johnson and Massac Counties;

Ill.—Eric Bolander Constr. Co., Winchester Rd., Libertyville, Ill., LB $141,281, P.C.C. base course 0.71 mi. Ill. 10 and 121 and 0.54 mi. of same on U.S. Hy. 66, Logan Co.;

Ill.—Contracting & Material Co., 1235 Dodge Ave., Evanston, Ill., LB $146,185, intermittent bit. resurf. and conc. pavement patching 1.37 mi. S.B.I. 19, 53, 57, 58 and 63, Cook Co.;

Ill.—Gem Contrg. & Paving, Inc., Moose Blvd., Quincy, Ill., LB $95,044, intermittent bit. resurf. 9.93 mi. Ill. 104, Adams and Pike Counties;

Ill.—General Contrg. Co., Granite City, Ill., LB $388,519, P.C.C. base course 2.24 mi. and bit resurf. 2.71 mi. Ill. No. 3, Madison Co.;

Ill.—Grundstrom Co. Inc., Glenview, Ill., LB $85,097, landscaping 2.55 mi. F.A. 131 (Congress St. Expressway), Cook Co.;

Ill.—Gunther Constr. Co., 600 E. Main St., Galesburg, Ill., LB $113,315, intermittent bit. resurf., conc. pavement patching 2.2 mi. U.S. 34 and 67 and Ill. 94 and 115, Warren, Henderson and McDonough Co.;

Ill.—Geo. H. Hartong, Inc., 340 Sherwood Ct., LaGrange Park, Ill., LB $137,981, intermittent bit. resurf. and concrete pavement patching 2.63 mi. S.B.I. 7, 49 and 52, Cook Co.;

Ill.—Howell Asphalt Co., P. O. Box 420, Mattoon, Ill. LB $160,956, intermittent bit. resurf. and conc. pavement patching 5.4 mi. Ill. 1304, 133 and U.S. 150, Coles, Cumberland, Douglas and Edgar Counties;

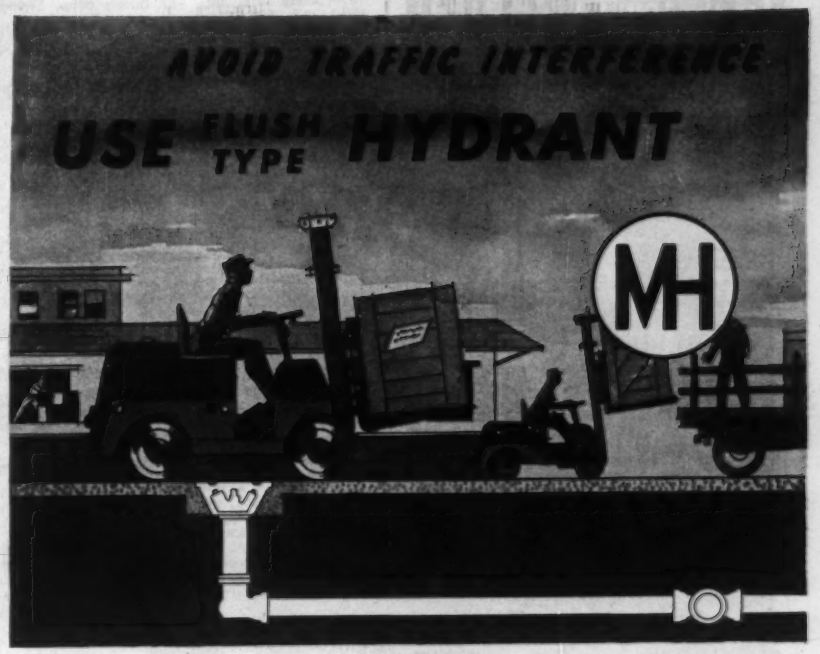
Ill.—I. D. Lain Co., 1901 E. Adams St., Springfield, Ill., LB $139,830, bit. surf. tr. on waterbound base course 3.95 mi. F.A.S. 567, Mason Co.;

Ill.—Marquette Constr. Co., 1616 N. Ogden Ave., Chicago, Ill., LB $87,215, P.C.C. base course, bit. resurf. 0.27 mi. S.B.I. 50 (Cicero Ave.) Cook Co.;

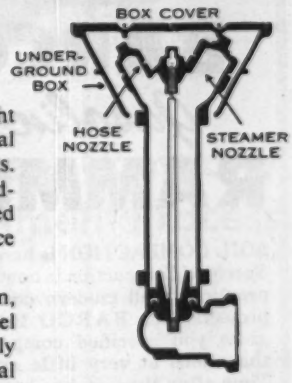
Ill.—McDougal-Hartmann Co., 1500 N. Adams St., Peoria, Ill., LB $116,436, P.C.C. base course 0.13 mi., P.C.C. base course widen 3.61 mi. U.S. 24, Brown Co.; LB $564,348, A.C.C. pavement and three-span grade separation 3.07 mi. F.A. 14, Jackson Co.;

Ill.—Rees Constr. Co., 2474 11th Ave., Monroe, Wis., LB $153,723, bit. surf. on gravel or crushed stone base 4.26 mi. F.A.S. 69, Jo Daviess Co.;

Ill.—Rockford Blacktop Constr. Co., 1615 Westchester Dr., Rockford, Ill., LB $91,481, intermittent bit. resurf. 8.91 mi. Ill. 26 and 64 and U.S. 51, Stephenson, Ogle and Winnebago Counties;



IT SETS COMPLETELY UNDERGROUND



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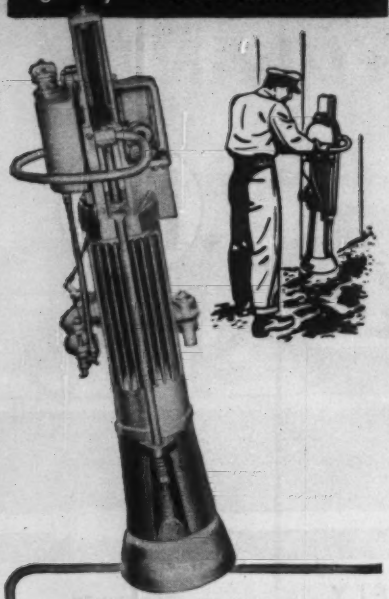

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Ill.—**Sankey Bros. Inc.**, 402 Illinois Bldg., Springfield, Ill., LB $80,529, bit. resurf. 3.74 mi. U.S. 24, Brown Co.;

Ill.—**Strunk Bros.**, Tiskilwa, Ill., LB $79,300, earth grading and gravel or crushed stone surf. course 3.24 mi. F.A.S. 191, Whiteside Co.; LB $149,554, bit. surf. tr. on gravel or crushed stone 6.05 mi. F.A.S. 248, Bureau Co.;

Ill.—**Triangle Constr. Co.**, 480 N. Evergreen Ave., Kankakee, Ill., LB $163,844, bit. resurf. 1.08 mi. S.B.I. 144 (Walnut St.) Murphysboro, Jackson Co. Bids Aug. 9. CD 7/27.

▲ **Grafe-Callahan Constr. Co.**, 714 W. Olympia Blvd., and **Mittry Contractors**, 2960 Marsh St., both Los Angeles, Calif., **Tecon Corp.**, 1201 Main St., Dallas, Tex., and **Johnson, Drake & Piper, Inc.**, 86 Trinity Pl., New York, N. Y., CA $12,500,000. water tunnel project connecting Navy Pier filtration plant with existing water pumping stations, CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids June 10, awarded Aug. 10. CD 6/21, under LB.

MICHIGAN—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

Hodgkiss & Douma, Petoskey, Mich. LB $157,340. aggregate surf. wid'n. 22 ft. wide bit. aggregate surf. 10.9 mi. on M-55 from M-76 near west Branch east city limits easterly, Ogemaw Co. Bids Aug. 10. CD 8/3.

William P. Eddy, Ann Arbor, Mich. CA Total Est. $118,000. sewer work around the Phoenix and Cooley bldgs. on the University of Michigan's North Campus, ANN ARBOR, MICH. University of Michigan, W. K. Pierpont, vice pres., Ann Arbor, Ann Arbor, Mich. CD 12/4/53, under Public Buildings;
General Electrical Shop, 618 S. Main St., Ann Arbor, Mich. CA. electrical work. (Ann Arbor, Mich.);
Lewis & Frisinger, 214 E. Madison St., Ann Arbor, Mich. CA. road work (Ann Arbor, Mich.);
Ann Arbor Constr. Co., 221 Felch St., Ann Arbor, Mich. CA sidewalks, parking lots and other work. (Ann Arbor, Mich.).

BUILDINGS—LB & CA

K.T. Builders, Inc., (Milton Kodish and Clarence Thomas, partners), S. Cleveland Ave., Niles, O., Own Forces, $750,000. fifty-eight 1½ story HOMES 1 mi. west of McKinley Heights Shopping Plaza, NILES, O.

Clearing Industrial District, Inc., 38 S. Dearborn St., Chicago, Ill., CA $550,000. 64,000 sq. ft. FACTORY, CHICAGO, ILL. Leitner Equipment Co., 2326 S. Canal St., Chicago, Ill. Awarded Aug. 4.

▲ **James McHugh Constr. Co.**, 6449 S. Park Ave., Chicago, Ill. and **C. E. Youngdahl & Co., Inc.** 29-28 41 Ave., Long Island City, N. Y. CA $12,785,000. six APARTMENT bldgs. incl. 118 units, 35 and S. State Sts., CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago, Ill. Bids May 17, awarded Aug. 3. CD 5/27, under LB.

▲ **Irving Blietz**, 1141 Hibbard Rd., Wilmette, Ill., Own Forces, $2,400,000. 80 HOMES, Hillside and Princeton area, EVANSTON, ILL.

Northern States Co., 33 N. La Salle St., Chicago, Ill. CA $150,000. FACTORY, MONTGOMERY, ILL. Western Electric Co., Cicero at 22 St., Chicago. Ill. Awarded Aug. 5.

▲ **Harvus Constr. Co.**, 3535 Peterson St., Chicago, Ill., Own Forces, $6,000,000. 300 HOMES, MORTON GROVE, ILL.

▲ **Jos. T. Carp, Inc.**, 5640 Northwest Hy., Chicago, Ill. CA $6,000,000. 340 HOMES, PALATINE, ILL. D & J Suburban Homes Corp., 176 W. Adams St., Chicago 3, Ill. A. J. Del Bianco, 5501 Irving Park Blvd., Chicago, Ill., archt.

▲ **Comet Constr. Co.**, 1848 Milwaukee Ave., Chicago, Ill., Own Forces, $1,500,000. 95 HOMES, PALATINE, ILL. Martin J. Green, 730 Milburn St., Evanston, Ill., archt.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† **Oklahoma**—BA 8/31—U. S. Eng., Box 61, Tulsa, Zone 2, levee repairs bank stabilization, Pauls Valley, CIVENG-34-066-56-2, $45,000. CD 9/7/44.

Okla., Sapulpa—BA 8/31—City, water imprvs. $80,000. Plans deposit $10. Fall & Wheeler, 6339 E. Tecumseh, Tulsa, engrs. CD 12/13.

† **South Dakota**—SUB-STATION ADDNS.—BA 9/1—Bureau Reclamation, Dpt. Interior, Huron, Sious Falls Sub-stations addns. and modifications at Watertown Sub-station, Transmission Div., Missouri River Basin Proj. Spec. DC 4494. Bid date changed. CD 8/10.

† **Arkansas**—BA About 9/6—U. S. Eng., P. O. Box 867 Little Rock, bank stabilization, Brown's Bend (River Mile 152.2 to River Mile 150.5) Arkansas River watershed, Arkansas River CIVENG-03-050-56-6.

Kan., Pawnee Rock—BA 9/6—City, sewers, sewage plant, $90,000, H. R. Hunter, 313 E. 3 St., Wichita, engr.

† **Iowa, Sioux City**—APPROACH LIGHTING—BA 9/7—U. S. Eng., 1709 Jackson St., Omaha, Neb., approach lighting, Sioux City Air Force Base, Inv. 25-066-56-8. CD 2/2/53.

† **Minn., Duluth**—PAVING FACILITIES—BA 9/8—U. S. Eng., 1217 U. S. Post Office & Customhouse, 180 E. Kellogg Blvd., St. Paul, Zone 1, paving facilities, Duluth Air Force Base, ENG-21-018-56-4. CD 8/4.

† **Montana**—BA 9/8—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., Schedule 1, Item 1, high-pressure gate with hydraulic hoist, hydraulic gate hanger, for Tiber Dam, Maria Division, Lower Marias Unit, Missouri River Basin Proj. Inv. DS-4489. CD 7/30/45.

North Dakota—TELEPHONE LINES—BA 9/8—Dakota Central Rural Telephone Assn., Carrington, 252.49 mi. of rural telephone lines, Kidder and Stutsman Counties, $125,000. Communications Consultants 1114 12½ Front St., Fargo, engrs. CD 4/5/53.

† **Tex., Ellington Air Force Base**—TOWER—BA 9/8—U. S. Eng., Box 1229, Galveston, extension of AC & W tower, Ellington Air Force Base, Inv. No. ENG-41-243-56-1. $90,000. Extended date. CD 7/20.

† **North Dakota**—POWER CIRCUIT BREAKER—BA 9/13—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnish del. f.o.b. cars shipping point or f.o.b. cars West Fargo, Schedule 1, Item 1, one 14.4-kilovolt, (110-kilovolt (BIL)), 2,000-ampere, power circuit breaker for Fargo Substation, Transmission Div., Missouri River Basin Proj. Inv. DS 4496.

† **Ark., Jacksonville**—LABORATORY—BA 9/15— U. S. Eng., P. O. Box 867, Little Rock, base technical laboratory bldg. 1A, Little Rock Air Force Base, ENG-03-050-56-7.

† **Kansas and Nebraska**—BA 9/15—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., Schedule 1, Item 1, 8x10 ft. fixed wheel gate and 8x10 ft. radial gate; Schedule 2 Item 2, 8x10 ft. fixed wheel gate and 8x10 ft. radial gate, f.o.b. cars shipping point, or f.o.b. cars Lovewell, Kan., for outlet works at Lovewell Dam, Bostwick Division, Missouri River Basin, Inv. DS-4491. CD 9/14/53, under Kansas.

Mo., St. Louis—BA 9/20—City, Frank J. McDevitt, pres., Bd. P. Service, 304 City Hall, 12 Blvd. and Market St., Zone 3, paving parkway center, Forest Park Ave., Grand Blvd. to Kingshighway, $220,000; rein.-con. paving north half west Florissant Ave., Bircher Blvd. to Riverview Blvd., $170,000. H. J. Horan, ch. engr. CD 7/21.

▲ **Tex., Brownsville**—DOCKS—BA 9/21—Bd. Comrs. Brownsville Navigation Dist. of Cameron Co., Brownsville, 200x1,000 ft. rein.-con., steel, brick structure over Docks 12 and 13, $1,000,000. Plans deposit $100. Extended date. Cameron Eng. Co., Maltby Bldg., engr. CD 8/11.

Tex., Farmers Branch—Bids Asked—W.W. Caruth, Jr., 5803 Greenville Ave., Dallas, water-sewer lines. $75,000.

Tex., Farmers Branch—Bids Asked—W. W. Caruth, Jr., 5803 Greenville Ave., Dallas, earthwork, grading, 48-acre shopping center tract. $50,000.

Tex., Kilgore—Bids Asked—Alliance Ware, Inc., Alliance, O., water sys. $48,500.

Tex., Kilgore—Bids Asked—Alliance Ware, Inc., Alliance, O., sanitary-storm sewer lines in plant zone, $85,000.

Tex., Kilgore—Bids Asked—Alliance Ware, Inc., Alliance, O., earthwork, grading, filling, grounds development for plant, $55,000.

Tex., Kilgore—AREA LIGHTING—Bids Asked—Alliance Ware, Inc., Alliance, O., area lighting in plant zone, $75,000.

BUILDINGS—BA

N. D., Grand Forks—DORMITORY—BA 8/30—State Bd. Higher Educ., Bismarck, womens dormitory, University of North Dakota. $350,000. Wells & Denbrook, 425 Kittson Ave., Grand Forks, archts. CD 4/19/51.

Tex., Fort Worth—SCHOOL—BA 9/1—Castleberry Common School Dist., O. O. Strother, 5228 Ohio Garden Rd., Houston, 2 story, 45,000 sq. ft., brick, stone Senior High School. $650,000. A. B. Withers, 5329 W. Rosedale Expressway, archt. CD 4/29/54.

Kan., Kansas City—POWER WIRING AND PIPING—BA 9/7—Bd. P. Utilities, City Hall, Contrs. K-54 and 55, Kaw Power Station extensions, power wiring and piping, $600,000, Burns & McDonnell Eng. Co., 95 and Troost Sts., Kansas City, Mo., engs. CD 7/1/54.

▲ **Tex., Beaumont**—SHOPPING CENTER—Bids Asked—Beaumont Village Corp., Beaumont, shopping center, $2,750,000. CD 4/29.

▲ **Tex., Farmers Branch**—SHOPPING CENTER—Bids Asked—W. W. Caruth, Jr., 5803 Greenville Ave., Dallas, shopping center, 48-acre tract. $5,000,000. CD 6/1.

▲ **Tex., Kilgore**—PLANT—Bids Asked—Alliance Ware, Inc., Alliance, O., plant, $1,000,000. CD 6/2.

BUILDINGS—SLC

▲ **Tex., Odessa**—OFFICE—G.O.B.S.C., 1000 N. Lee St., Odessa, soon lets contract 10 story, bsmnt. office for M.S.D. Rentals E. 8 St. and Echo Ave. $1,250,000. Taylor & Devlin, 3004 N. Jackson St., archts. CD 7/28.

HEAVY CONSTRUCTION—LB & CA

F. A. Kelly, LeCenter, Minn. CA $100,000. bit. paving, concrete curb and gutter, concrete sidewalks, EVELETH, MINN. City, E. A. Taipale, clk., Eveleth, Minn. Bids July 28. CD 7/20.

Woodrich Constr. Co., Hopkins, Minn. CA $432,143. (3 bidders) c. conc., bit. surf. 1.4 mi. Excelsior Blvd. between TH 100 and west city limits, St. Louis Park, MINNEAPOLIS, MINN. Hennepin Co., R. F. Fitzsimmons, aud., Minneapolis, Minn. Bids Aug. 9. CD 7/21.

† **Costa Co., Inc.**, WOW Bldg., Omaha, Neb. LB. $697,923, constr. and repair standard dikes and revetment, Missouri River, Lower Monona-Upper Decatur Bends, near Whiting, IOWA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Aug. 10. CD 8/3.

▲ **Northwestern Bell Telephone Co.**, 909 High St., Des Moines, Iowa, Owner Builds, $1,500,000. storm-proof long distance telephone cable, 87 mi. from

Dubuque to Waterloo and approx. 70 mi. from Independence to Decorah, IOWA.

▲ **Chicago, Burlington & Quincy R.R. Co.**, H. A. Aalberg, Own Forces, $1,500,000. replacing 25 mi. track with heavier rails from Scottsbluff and Northport, NEBRASKA.

† **U. S. Eng.**, Box 61, Tulsa, Zone 2, rejected bids June 24, base ammunition shop, Altus Air Force Base. Inv. No. ENG-34-066-55-97. LB $141,041, ALTUS, OKLA. CD 7/6 under LB.

Mid-Texas Telephone Co., South Texas Bldg., San Antonio, Tex., Own Forces, $100,000. imprv. extending some pole rural lines, Milam Co., TEXAS.

▲† **Heidenfels Brothers**, Box 1917, Corpus Christi, Tex. LB $1,617,900. 8,000 ft. parallel runway, 5 connecting taxiways, c. conc. pavement, b. conc. pavement, storm sewers, disposal plant, etc., NOY 86330, KINGSVILLE, TEX. Bureau Yards & Docks, Navy Dpt., Bldg. No. 1, Naval Station, Corpus Christi, Tex. Bids Aug. 9. CD 7/14.

COLORADO—State Hy. Dpt., 518 State Office Bldg., Denver,

E. J. Rippy & Sons, New Castle, Del., CA $220,863, est. $216,000. stabilization, structures and road mix asph. surf. 8.002 mi. Waverly, Proj. S 0120 (2) and S 0120 (3), Alamosa and Rio Grande Counties. Bids Aug. 9. CD 8/4.

F. H. Linneman, Inc., 1300 Gray St., Lakewood, Colo., CA $90,505, Sch. 1 and Sch. 2, water pipe line installation, LOUISVILLE, COLO. City, City Hall, Louisville, Colo. Bids Aug. 4.

BUILDINGS—LB & CA

M. Mandel, 1014 Plymouth St., Minneapolis, Minn. CA $510,500. general contract SCHOOL addn., ARLINGTON, MINN. Bd. Educ., C. H. Meyer, clk., Arlington, Minn. CD 8/2, under LB.

H. Purtell Contr. Co., Hamm Bldg., St. Paul, Minn. LB $442,686. (7 bidders) general contract HIGH SCHOOL, PINE ISLAND, MINN. Bd. Educ., H. Klingshorn, clk., Pine Island, Minn. Bids Aug. 10. CD 7/28.

Lenci, Lenci & Englund, Virginia, Minn. CA $832,900. (7 bidders) general contract HOSPITAL addn., VIRGINIA, MINN. City Hospital Comn., J. N. Richardson, pres., Virginia, Minn. CD 8/10, under LB.

▲ **Newton L. Margules**, 415 Equitable Bldg., Des Moines, Iowa, Owner Builds. $5,000,000. SHOPPING CENTER, Grand Ave. and city limits beyond Milwaukee Railroad tracks, DES MOINES, IOWA.

W. A. Klinger Co., 201 Benson Bldg., Sioux City, Iowa, CA $695,272. general contract MEDICAL RESEARCH CENTER, at University of Iowa, IOWA CITY, IOWA. Bd. Educ., State Office Bldg., Des Moines, Iowa. Bids July 21. CD 8/5, under LB.

Nordberg Mfg. Co., 3073 S. Chase St., Milwaukee, Wis. CA $242,230, light and POWER PLANT imprvs. incl. 2,000 to 3,000 hp diesel engine generating unit, exciter, generator, MAQUOKETA, IOWA. City, J. G. Thorne, city clk., and Ben Jacobson, Mayor, Maquoketa, Iowa. Bids July 11.

▲ **Lehr Constr. Co.**, 2115 Frederick St., St. Joseph, Mo. CA Approx. $1,000,000. STORE, WAREHOUSE and SERVICE STATION, ST. JOSEPH, MO. Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill. Bids July 12. CD 7/7.

Behlen Constr. Co., Columbus, Neb., CA $100,000. steel type GRAIN ELEVATOR, CHAPMAN, NEB. Chapman Co-operative Grain Elevator Co., Chapman, Neb.

▲ **Winn Center Constr. Co.**, Railway Exchange Bldg., Kansas City, Mo. CA Est. $1,024,710. Processing PLANT to be operated under name of "Rexford Pre-Pakt Co." 14 and Osage Ave., KANSAS CITY, KAN. Preston Constr. Co., Div. Safeway Stores, 905 N. 7 St., Kansas City, Kan. CD 7/21.

J. Lawrence Jones, 406 W. Clarendon St., Dallas, Tex., CA $875,000. third section of SHOPPING CENTER, DALLAS, TEX. W. W. Caruth Jr., 5603 Greenville St. Dallas, Tex. CD 7/7/54.

International Estate Subdivision c/o R. W. Baxter, Rio Grande Natl. Bldg., Dallas, Tex., Purchase and Hire, $379,000. 30 DWELLINGS; $385,000, 34 DWELLINGS, GRAND PRAIRIE, TEX. CD 6/2.

▲ **Laughlin & Silver, Contrs.**, 1502 Centerville St., Dallas, Tex., CA $375,000 35 DWELLINGS; CA $350,750, 24 dwellings; CA $365,500, 30 dwellings; FARMERS BRANCH, TEX. Grand total $1,091,250. Laughlin & Silver, 1502 Centerville St., Dallas, Tex. CD 6/2.

Elton Brimberry, Contractor, 4363 Rosslyn St., Houston, Tex., CA $362,500. 28 DWELLINGS; CA $377,100. 35 DWELLINGS, HOUSTON, TEX. Elton Brimberry, 4363 Rosslyn St., Houston, Tex.

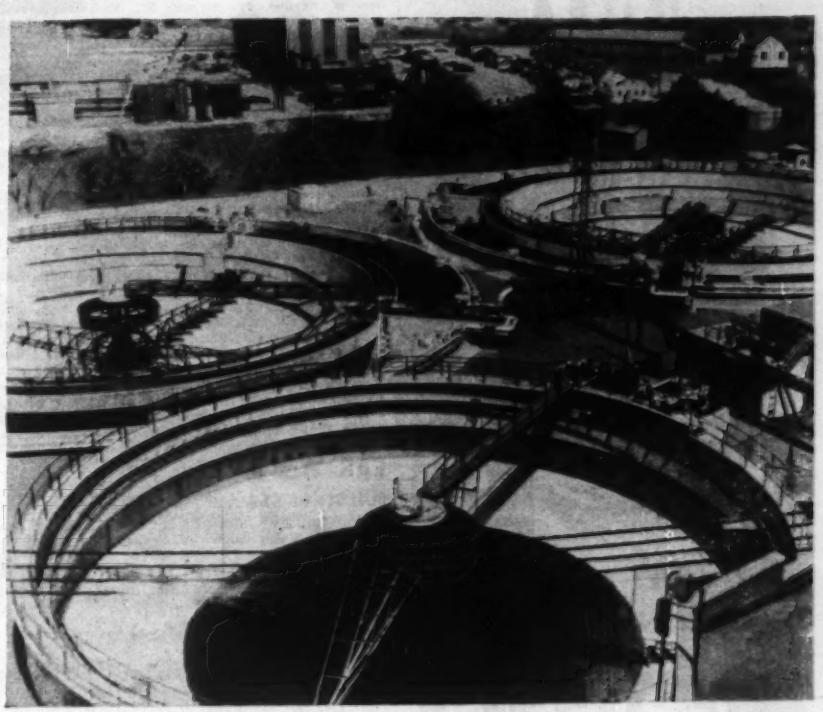
Houston Lighitng & Power Co., 1016 Walker St., Houston, Tex., Own Forces, $115,000. Job 3, electric SUBSTATION; $100,000, Job 4, electric SUBSTATION; $116,500, Job 7, electric SUBSTATION. HOUSTON, TEX. Grand total $331,500. CD 3/25/53.

W. W. McMillan, Builder, 5902 Southford St., Houston, Tex., CA $385,000. 38 DWELLINGS; CA $345,000. 28 DWELLINGS, HOUSTON, TEX. W. W. McMillan, 5902 Southford St., Houston, Tex. CD 5/25.

Carlton Co., c/o Carl Hensley, 3304 24 St. Lubbock, Tex., Owner Builds, $372,160, 24 DWELLINGS; $382,500, 28 dwellings, LUBBOCK, TEX. CD 6/6.

Joe Danna Constr. Co., 4922 Greenville St., Dallas, Tex. Owner Builds. $379,920. 38 DWELLINGS; $363,000. 30 DWELLINGS, MESQUITE, TEX. CD 6/2.

Fisher Constr. Co., Box 6325, Houston, Tex., CA $774,000. 4 story, penthouse, 110-room, HOTEL, ORANGE, TEX. Jack Tar Management Co., Orange, Tex. Bids Aug. 2, awarded Aug. 10. CD 8/10, under LB.



General view of the plant during final stages of construction. Dorr Primary Thickener is in foreground with Currie Claraetors in rear.

Consulting Engineers: GIBBS & HILL, INC., New York, New York

West Virginia Pulp and Paper Company Pioneers New Waste Treatment Process

Dorr-Oliver Equipped Plant Sets Pattern for Industry

Covington, Va. Industrial waste treatment has taken a major step forward with the start-up of this new plant at West Virginia Pulp and Paper Company's Covington, Va., mill. A "first" for the alkaline pulping industry, it points the way toward a solution of these tough-to-handle wastes. Two years of pilot plant work went into the final design and the Covington mill's River Research Group worked closely with the National Council for Stream Improvement throughout all phases of the project. The firm of Weston, Eckenfelder and Hood was also called in to make an intensive round-the-clock analysis of pilot plant results.

The flowsheet as developed is unique. Basically it employs the activated sludge process, one of the standard methods for treating municipal sewage. A departure from standard practice is the addition of certain nutrients essential to the life of the bacteria which carry out the treatment process. Another is split treatment providing primary sedimentation for the portion of mill wastes containing solids and then parallel aeration and final sedimentation for the entire flow. A third is the use of complete instrumentation with one control panel governing the process and recording results.

Average treatment plant design is 16 MGD with a maximum capacity of 25 MGD. Major equipment units include a Dorr Primary Thickener and two Currie Claraetors.* These latter units employ Dorr Final Clarifiers surrounded by annular aeration channels. In this way two distinct phases are carried out in a single unit. When the plant reaches full operation an estimated BOD reduction of 80-90% will be made in the mill effluent being discharged to the Jackson River.

Dorr-Oliver Incorporated, Stamford, Conn.

*Trademark, Reg. U. S. Pat. Off.

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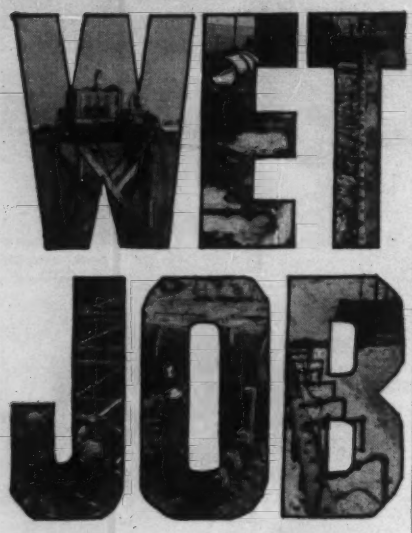

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Geo. W. Keeling, 414 Burnside St., San Antonio, Tex., Owner Builds, $375,000. 36 DWELLINGS, SAN ANTONIO, TEX. CD 5/24.

H. B. Kaulbach, 122 Sharon St., San Antonio, Tex., Owner Builds, $350,000. 14 masonry-type DWELLINGS, SAN ANTONIO, TEX. CD 5/24.

Wm. Ochse, Builder & Associates, 102 Green Meadows St., San Antonio, Tex., CA $352,500. 30 DWELLINGS; CD $348,000. 25 DWELLINGS, SAN ANTONIO, TEX. Green Meadows Development Co., Inc. Wm. Ochse, Ralph Eiser, & W. R. Reid, 833 Bandera Rd., San Antonio, Tex. CD 5/31.

Creekmore Motor Co., Texarkana, Tex., rejected bids July 28, AUTO SHOP-SALES-SERVICE, LB $97,000. TEXARKANA, TEX. CD 8/10 under LB.

J. L. Hair & Son Constr. Co., 2704 Kemp St., Wichita Falls, Tex., CA $351,714. CHURCH addn., WICHITA FALLS, TEX. First Methodist Church, Wichita Falls, Tex. CD 8/12.

Lowe Constr. Co., 2325 Ninth Ave. N., Billings, Mont. LB $407,600. 1 story, 265x268 ft., concrete block, combined WAREHOUSE and OFFICE, BILLINGS, MONT. Building Service, Inc., 1701 Montana Ave., Billings, Mont. Cushing & Terrell, 1333 N. 27 St., Billings, Mont., archts.

▲† Geo. A. Rutherford, Inc., P. O. Box 711, Albuquerque, N. M. CA $1,556,499. HOSPITAL addn., Sandia Base, ENG-29-005-56-6, ALBUQUERQUE, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. CD 8/11, under LB.

FAR WEST

BUILDINGS—BA

Calif., Coalinga — JUNIOR COLLEGE — BA 9/12 — Coalinga Union High School Dist., c/o Superintendent, Coalinga, Junior College adjacent to high school and Junior College Farm School, Hy. 1 and Cherry Ave. $700,000. Plans deposit $25. Walter Wagner, 1830 Van Ness Blvd., Fresno, archt. CD 9/1.

HEAVY CONSTRUCTION—LB & CA

IDAHO—State Hy. Dpt., Boise,
W. W. Clyde & Co., Springville, Utah, CA $884,093. roadway, plant mix bit. surf. and two 30 ft. concrete bridges 10.22 mi. U. S. 89 and a maintenance stockpile, Bear Lake Co. Bids Aug. 9. CD 8/1.

† Ruud Constr. Co., Realty Bldg., Spokane, Wash., CA $85,294, site development work at Albeni Falls Dam. Inv. 55-57. IDAHO. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids July 15. CD 6/15.

† R. K. Shelton Constr. Co., Roseburg, Ore. CA $69,550. rehabilitation Four Mile Lake Dam and Fish Lake Dam, Medford Irrigation District Proj., Spec. 100C-223, OREGON. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids June 28, awarded Aug. 3. CD 5/24.

Public Docks Comn., 3070 N. W. Front St., Portland, Ore. rejected bids rehabilitate, extend Slip No. 2, PORTLAND, ORE. LB $329,289. CD 8/1, under LB.

CALIFORNIA—State Div. Hys., Los Angeles,
Griffith Co., 1060 S. Broadway, Los Angeles, Calif., CA, $193,734. wid'n. roadbed, placing plant mix surf. on cement treated base 0.8 mi. over portions of existing pavement, traffic signal and lighting sys., between Glendale Ave. and Towne St., Glendale, Los Angeles Co. Bids July 14, awarded July 26. CD 6/20.

▲ CALIFORNIA—State Div. Hys., 1120 N. St., Sacramento,
Charles L. Harney, Inc., 575 Berry St., San Francisco, Calif., CA $1,744,214, imprvt. of facilities, San Francisco-Oakland Bay Bridge Toll Plaza and at the Port of Oakland overcrossing, Alameda Co. Bids July 27, awarded Aug. 9. CD 8/1.
L. B. Wells Constr. Co., 2 Ave. South, Visalia, Calif., LB, $209,300 (4 bidders) ground imprvs. for 14 ward bldgs., Porterville State Hospital, PORTERVILLE, CALIF. State Div. Architecture, 1120 N St., Sacramento, Calif. Bids Aug. 9. CD 7/25.
Pipe Linings, Inc., 4675 Firestone Blvd., Los Angeles, Calif., LB, $221,216 relining 56 in. diam. water pipe line, vicinity Cashman Creek for the Hetch Hetchy Aqueduct, SAN FRANCISCO, CALIF. City and San Francisco County, Public Utility Comn., City Hall, San Francisco, Calif. CD 2/5/45.

BUILDINGS—LB & CA

† Bickford Contr. Co., 823 S. E. 28 St., Portland, Ore., LB, $657,000, est. $700,000 modifications and addnl. facilities in aircraft nuclear propulsion area, incl. administration bldg., and warehouse, ARCO, IDAHO. Atomic Energy Comn., Idaho Operations Office, 552 2 St., Idaho Falls, Idaho. Bids Aug. 10. CD 8/2.
J. Gillespie, 803 E. 73 St., Seattle, Wash., LB, $95,844. 2 story food processing PLANT, SEATTLE, WASH. Johnson Mfg. Co., Fox and Holly Sts., Seattle, Wash. Bids Aug. 1. CD 7/28.

CANADA

HEAVY CONSTRUCTION—LB & CA

Fraser River Pile Driving Co. Ltd., foot of 30th St., New Westminster, LB $237,660, steel "H" lighthouse pier and superstructure at Sand Heads, NEW WESTMINSTER, B. C. Dpt. Transport, Ottawa, Ont. Bids Aug. 1. CD 7/22.
† Hagan-Booth Inc., 35 Westminister St., Providence, R. I., CA $679,737. P.O.L., sewage disposal and electric power facilities, Pepperrell Air Force Base, ENG-30-347-55-10, ARGENTIA, NEWFOUNDLAND. U. S. Eng., 346 Broadway, New York 13, N. Y. Bids June 24. CD 6/10.

BUILDINGS—LB & CA

Wyatt Constr. Co. Ltd., 383 McMillan Ave., Winnipeg, Man., CA $723,862. "The Mackay" Indian Residential SCHOOL, DAUPHIN, MAN. Dpt. Citizenship & Immigration, Indian Affairs Branch, Copeland Bldg., Ottawa, Ont.

PUERTO RICO

HEAVY CONSTRUCTION—BA

† Puerto Rico, Aguadilla—STORAGE, etc.—BA On Or About 9/20—U. S. Eng., P.O. Box 4970, Jacksonville, Fla., bulk mogas storage and bulk supply base warehouse, FY-56, Ramey Air Force Base, Serial No. ENG-08-123-56-13.

† Puerto Rico, Aguadilla—BREAKWATER MOLE—BA On Or About 9/22—U. S. Eng., P.O. Box 4970, Jacksonville, Fla., breakwater mole (FY-56), Ramey Air Force Base, ENG-08-123-56-15.

HEAVY CONSTRUCTION—LB & CA

† U. S. Eng., P.O. Box 4970, Jacksonville, Fla., cancelled bids to have been opened on or about Sept. 9, communications facilities, Ramey Air Force Base, ENG-08-123-56-14, AGUADILLA, PUERTO RICO. CD 8/1.

BUILDINGS—BA

▲ Iraq—REFINERY—BA Before 11/5—Development Bd., Govt. of Iraq, Baghdad, beet sugar refinery at Mosul. $8,400,000.

PROPOSED PROJECTS

WATER SUPPLY

▲ Colo., Denver—Bd. Water Comrs., City and County Bldg., voted $75,000,000 bonds Aug. 9, tunnel, filter plant addn., new filter plant, two reservoirs, $100,926,000. CD 6/24.

▲ Ky., Louisville—Louisville Water Co., S. Third St., filter plant addn. and tunnel under Frankfort Ave., $2,000,000, Alvord, Burdick & Howson, 20 N. Wacker St., Chicago, Ill., consult. engrs. Bids in August. CD 3/17/53.

▲ O., Cleveland—City, Dpt. P. Utilities, Emil J. Crown, dir., City Hall, Zone 14, 48-in. watermain from Nottingham Station to Highland Rd., $1,000,000. Havens & Emerson, Leader Bldg., Cleveland, Zone 14, consult. engrs. G. W. Hamlin, city engr. Bids about Oct. 1. CD 1/27/54.

O., Mansfield—City, City Hall, 27 W. Second St., 24-in. water main from Woodland Reservoir down Trimble Rd. to Park Ave., 16-in. line west on Park Ave. to booster station and then 12-in. to service new Fisher Body Plant, $600,000.

▲ O., Warren—Bd. Comr., Trumbull Co., Court House, water distr. sys. to supply newly formed Howland-Vienna-Liberty Sewer District, $1,650,000. Synder, McLellan, Welsh & Steinberg, Hillsboro, Ind., consult. engrs.

O., Worthington—Village, water plant with immediate capacity of 2¼ mgd expandable to 4½ mgd on west bank of Olentangy River incl. diversion dam 500,000 gal. elevated storage tank in northeast section, $677,000. Bird & Tietzel, 2130 Arlington St., Columbus, consult. engrs. CD 5/27/53.

SEWERS, WASTE DISPOSAL

▲ Ga., Decatur—DeKalb County Bd. of Comrs., County Court House, disposal plant and new lines in Doolittle Creek-Sugar Creek area $750,000; sewers in North Prong-Peachtree Creek area, $220,000; development of sewerage sys. from Old Decatur Water Works to Tucker along Burnt Fork Creek, $200,000; Nancy Creek sewer line, $190,000; sewers in East Doraville-Northwoods area, $120,000; sewers for old section of Ashford Park $60,000; sewers in Alexander Estates, $75,000; sewers in McAfee Rd.-Columbia Dr. area, $75,000; sanitary sewer sys. for Clarkston, $80,000. CD 3/2.

▲ Mo., St. Joseph—City, sewage treatment plant, $7,000,000. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 12/23/53.

▲ Wash., Bellingham—City, City Hall, sewage treatment plant for south end, $400,000; enlarge north side treatment plant, $250,000; separate sanitary and storm sewers, $1,072,000. T. P. Scholz, city engr.

BRIDGES

▲ MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Concord—bridge over Concord River, $265,000.
Lowell—elimination Middlesex St. grade crossing, (railroad), $1,500,000.
Pepperell—reconstr. Nissitisset River Bridge, $50,000 railroad bridge Rte. 113, $100,000.

▲ O., Dayton—Montgomery Co. Comrs., Courthouse, to vote Nov. 8 on tax levy to raise $5,000,000, 17 bridges incl. Dorothy Lane Bridge over Miami River, $1,900,000; Stanley-Ridge Ave. bridge, $1,461,465. CD 2/21/45.

STREETS AND ROADS

▲ MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Bedford and Carlisle—constr. hy., $300.000.

Billerica and Chelmsford—completion Rte. 3, $1,430,000.
Chelmsford—exten. Rte. 3 to North Rd., $2,300,000.
Chelmsford and Lowell—relocation Rte. 10, 2½ mi., $4,000,000.
Chelmsford and Tyngsboro—completion new route superway No. 3 thru to New Hampshire Line, $6,000,000.
▲ **OKLAHOMA**—State Hy. Dpt., Capitol, Oklahoma City Zone 5,
Caddo Co.—pavement widen 6 mi. U. S. 66 west of Canadian River, Bridgeport. $175,000.
Canadian Co.—pavement widen 4.5 mi. U. S. 81, north of El Reno, $140,000.
Creek Co.—grade, pavement 20 mi. Hy. 27 between Drumright and Bristow. $600,000.
Marshall Co.—grade, drain, asph. pavement 3.3 mi. U. S. 70 at Kingston, $337,000.
Oklahoma Co.—4-lane bypass grade and pavement 3.2 mi. U. S. 77 at Witcher. $1,400,000. CD 7/11/50.
Pittsburg Co.—grade, drainage 6.8 mi. U. S. 69 between Kiowa and Savanna, $280,000.
Pontotoc Co.—grade pavement 2.6 mi. Hy. 99 Ada, $275,000.
grade, drain, conc. pavement 1.51 mi. Hy. 3 in Ada, $385,000.
Wagoner Co.—double bit. pavement 7.5 mi. St. Hy. 104 at Okay. $425,000. G. H. Bittle, c/o owner, engr.
▲ **Tex., Dallas**—City, City Hall, Main and Harwood Sts., rerouting portion Lemmon Ave. to make way for Airport expans. $1,000,000. Koch & Fowler, 3900 Lemmon St., consult engrs. CD 11/21/51.
▲ **Que., Montreal**—City, City Hall, extending and widen. Burnside Ave., from Stanley to Guy Sts. incl. arcade through first 2-storys of Drummond Court Apartment, between Stanley and Drummond Sts. $1,135,000. Greenspoon, Freedlander & Dunne, 4151 Sherbrooke St. W., Montreal, engrs., Nenniger & Chenevert, 1440 St. Catherine St. W., surveyor. Lucien L'Allier, c/o owner, ch. engr. CD 6/15/54.

EARTHWORK, WATERWAYS

▲ **Idaho-Oregon**—Idaho Power Co., 1220 Idaho St., Boise, Idaho, Brownlee, Oxbow and Low Hill Canyon Dams in Snake River Proj. approved by the Federal Power Comn. $175,766,000. CD 11/22/50.
▲ **Alaska, Seward**—City, City Hall, low dam at outlet of Crescent Lake, with hydro plant. $3,500,000. H. T. Harstad & Assocs., 1000 Lenora St., Seattle, Wash., consult. engrs.
▲ **Quebec**—St. Lawrence Seaway Auth., 1225 No. 2 Temporary Bldg., Ottawa, Ont., St. Lambert lock in the Lachine Sect. of the St. Lawrence Seaway. A. Gordon Murphy, 685 Cathcart St., Montreal, ch. engr. CD 9/9/54.

AIRPORTS

▲† **Mich., Kalkaska**—JET AIR BASE—U. S. Eng., 1900 Cadillac Tower, Detroit, jet air base. $8,635,000. Site Changed, CD 12/23/54, under Mich., Cadillac.
Mo., Kansas City—OFFICE AND SERVICE REPAIR FACILITY—City, City Hall, plans by Kenneth O. von Achen, 1200 W. 39 St., Kansas City, Mo., 100x240 ft. combination office and service repair facility for small aircraft at west side of Municipal Air Terminal; Executive Aircraft Co., would have private hangar space for 100 small aircraft in series 1 story flat-roofed structures, covering 16½ acres, $500,000. CD 812/52.
▲† **Nev., Las Vegas**—RUNWAY, UTILITIES—U. S. Eng. 751 S. Figueroa St., Los Angeles, Calif., runway and utilities, Nellis Air Force Base. $2,000,000. Koebig & Koebig, 3142 Wilshire Blvd., Los Angeles, Calif., consult. engrs. CD 8/10/54.
▲ **Tex., Dallas**—City, (Airport Dpt.) City Hall, Main & Harwood Sts., Dallas, airways airmotive servicing project at Love Field, $2,000,000; Koch & Fowler, 3900 Lemmon St., Dallas, consult. engrs.; moving 3 hangars from west side of Love Field to east side Love Field, 32-acre tract east side of Love Field, $200,000, for Southwest Airmotive Co., 8401 Cedar Springs St., Dallas, Tex. Lessee. CD 3/16/54.
▲† **Tex., Lackland Air Force Base**—DORMITORIES, etc., U. S. Eng., Box 1229, Galveston, plans by Zimmerman & Bible, consult. engrs.-archts., 500 Stuart Ave., Houston, dormitories, auto maintenance shop, Lackland Air Force Base, over $5,000,000. CD 9/14/51.
▲† **Wash., Everett**—RUNWAYS—U. S. Eng. 4735 E. Marginal Way, Seattle Zone 4, runways, taxiways, etc. for reserve training center, Paine Field. $3,500,000.

PUERTO RICO

Puerto Rico, Rio Piedras—COMMERCIAL BLDG.—International General Electric of Puerto Rico, San Juan, plans by W. Fritz Schmidt, Nair St. No. 3, San Juan, 75,000 sq. ft. commercial bldg., air-conditioned. $700,000.
▲ **Puerto Rico, San Juan**—HOTEL—Puerto Rico Industrial Development Co., San Juan, plans by Toro & Ferrer & Torregrosa, Monserrate St. No. 560, San Juan, 8-story Landrum-Mills Hotel Corp. $4,400,000.

PUBLIC BUILDINGS

▲ **Ariz., Tucson**—SCHOOLS—Tucson School Dist. 1, Pima Co., Tucson, voted $8,585,000 bonds July 12, three high schools, one junior high school and eight elementary schools. CD 6/16.
† **Ariz., Yuma**—Housing—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., plans by Richard Neutra & Robert E. Alexander, 2300 Silver Lake Blvd., Los Angeles, Calif., 50-unit army family housing, Yuma Test Station, $600,000.
▲ **Calif., Inglewood**—HIGH SCHOOL—Centinela Valley Union High School Dist., 231 S. Grevillea St., plans by H. L. Gogerty, 3123 W. 8th St., Los Angeles, Lennox High School, $1,000,000. CD 3/15/54.
▲ **Calif., Los Angeles**—ENGINEERING etc.—University of Calif. at Los Angeles, 405 Hilgard St., plans by Stranton & Stockwell, 627 S. Carondelet St., engineering physical sciences bldg. $3,300,000; plans by Smith, Powell & Morgridge, 208 W. 8th St., life sciences graduate research bldg., $1,495,000; plans by Albert C. Martin & Assocs., 333 S. Beaudry St., library stack addn. $750,000; plans by Welton Becket & Assocs., 5657 Wilshire Blvd., pediatrics wing for medical center, $1,250,000. CD 7/21.
Colo., Boulder—SCHOOL—Fairview Consolidated School Dist., Boulder, bond election Aug. 30, 1 story brick school, Cherryvale Rd. $550,000. Atchinson & Kloverstrom, 257 Josephine St., Denver, Colo., consult. engrs.-archts. CD 2/29/52.
Colo., Ft. Collins—SCHOOL—School Dist. 5, Ft. Collins, bond election Sept. 27, school and school bldg. expansion, $700,000. CD 7/25.
▲ **Ga., East Point**—HOSPITAL—South Fulton Cities Hospital Auth., East Point, South Fulton area hospital, $1,500,000. CD 12/15/52.
Kan., Manhattan—DORMITORIES—State Bd. Admin., State House, Topeka, apartment dormitories for married students at Kansas State College, $500,000.
▲ **La., Lafayette**—COLLEGE—State Bd. of Educ., State Capitol, Baton Rouge, plans by August Perez & Assoc., Audubon Bldg., New Orleans, negro college incl. admin. bldg., classroom bldg., laboratory, library, cafeteria, infirmary, two residence halls, science bldgs., gymnasium, auditorium, warehouses, faculty housing, stadium, laundry facilities, $5,000,000.
▲ **Mich., Oak Park**—SCHOOL—City, Louise Shaw, city clk., plans by O'Dell, Hewlett & Luckenbach, 950 N. Hunter Blvd., Birmingham, 2 story high school wing addn., Oak Park Blvd., $1,000,000; elementary school, Albany site, $350,000. $4,500,000. total bond issue vote later this year.
▲ **Mich., Southfield**—SCHOOL—Bd. Educ., $3,500,000 bond election Sept. 12, junior high school, $900,000; elementary school, $400,000; swimming pool. CD 6/16/53.
Mich., Wyandotte—POLICE STATION—City, William E. Kreger, mayor, Wyandotte, police station, $500,000. Louis H. Moehr, city engr.
Minn., Proctor—SCHOOL—Bd. Educ., J. W. Parmeter, clk., plans by A. R. Melander, 603 Alworth Bldg.,

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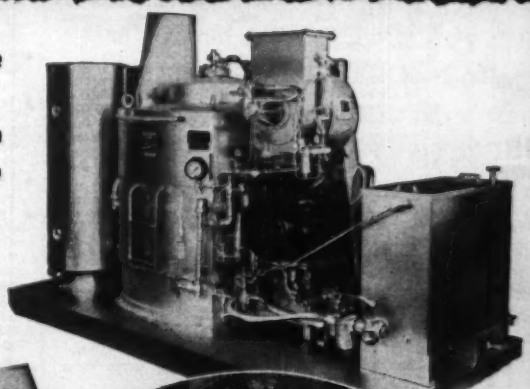

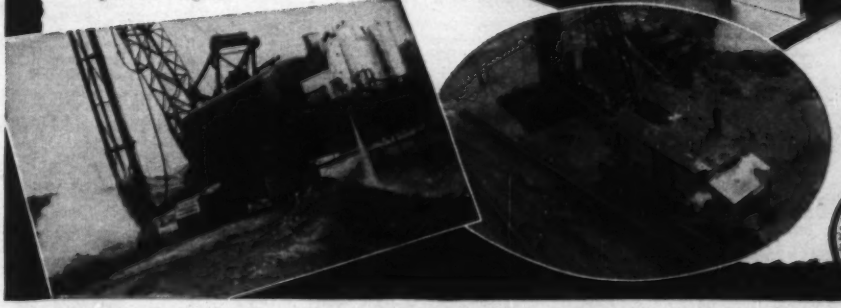

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Duluth, junior high school at Proctor; grade school and 2-bus garage at Pike Lake. $700,000. CD 7/28.

▲ **Neb., Omaha**—ARMORY—State Military Dpt., Nebraska National Guard, Capitol Bldg., Lincoln, plans by L. A. Daly Co., Insurance Bldg., armory. $1,000,000. CD 1/4.

N. J., Burnham Park—SCHOOL—Bd. Educ., Morris Twp., plans by Kelly & Gruzen, 80 Fifth Ave., New York 3, N. Y., elementary school on 13 acre tract on Hillcrest Ave., $500,000.

▲ **N. J., Newark**—LAW BLDG.—Rutgers University, 40 Rector St., plans by Kelly & Gruzen, 744 Broad St., Rutgers School of Law at 37 Washington St., $1,000,000, CD 2/25/53, under N. J., New Brunswick.

▲† **N. Y., New York**—OFFICE—General Services Admin., P. Bldgs. Service, Ave. F between 18 and 19 Sts. N. W., Wash., D. C., plans by Harrison & Abramovitz, 630 Fifth Ave., Zone 20, 8 story office for U. S. Mission to United Nations, near U. N. Bldg., $3,300,000. CD 7/29.

▲ **O., Cincinnati**—COLLEGE—University of Cincinnati, Burnet Woods Park, plans by James E. Allan, 914 Main St., 3 and 4 story, brick, rein.-con., stone applied arts college, $1,300,000. Work to start late 1955. CD 4/1.

▲ **O., Salem**—SCHOOL—Bd. Educ., E. S. Kerr, Supt. Schools, $2,585,000 bond election Nov. 8, senior high school; converting present bldg. into junior high school. Fulton, Krinsky & De la Motte, 6014 Euclid St., Cleveland, Zone 3, archts. CD 7/27.

O., Sandusky—CITY COURT ROOM AND JAIL—City, City Hall, $623,500 bond election Nov. 8, city bldg. on Meigs St. to house city dpts., municipal courtroom and city jail.

▲ **O., Toledo**—SCHOOL—Oregon Twp. School Bd., I. Wm. Miller, Exec. Head, 5721 Seaman St., $1,700,000 bond election Nov. 8, elementary school, modernization of existing school. Bellman, Gillette & Richards, 518 Jefferson St., archts. CD 11/11/52.

▲ **O., Warren**—Comrs., Trumbull Co., County Court House, $1,275,000 bond election Nov. 8, 4 story county office. Harold H. Hunter, 123 W. Market St., archt. CD 1/18.

▲ **O., Washington Court House**—SCHOOL—Bd. Educ., Miami Trace School Dist., (Concord, Greene, Madison, Jasper, Marion, Perry, Union and Wayne), Washington Court House, $1,650,000 bond election Nov. 8, high school, $1,000,000; rehabilitation existing schools for elementary use, $650,000.

R. I., Cranston—SCHOOL—Town, Office Supt. Schools, Park Ave. plans by Oliver W. Fontaine, 62 Hamlet Ave., Woonsocket, school. Approx. $600,000. CD 3/17/49.

Tex., Dimmitt—SCHOOL—Dimmitt Independent School Dist., Dimmitt, voted bonds, concrte, masonry, steel elementary school. $500,000. W. C. Townes, 1208 W. 10 St., Amarillo, archt.

▲† **Tex., Excell**—PLANT—Bureau Mines, Dpt. Interior, C St. between 18 and 19 Sts., N.W. Wash. D. C. helium plant, $6,000,000.

Tex., Mesquite—HIGH SCHOOL—Mesquite Independent School Dist., Mesquite, plans by Caudill, Rowlett & Scott, 412 S. Main St., Bryan, Junior High School. $875,000.

Tex., Port Lavaca—COURT HOUSE—Calhoun Co., c/o Howard Hantzog, Judge, Court House, court house, $600,000.

Tex., Seminole—COURT HOUSE—Gaines Co., Court House, voted bonds July 23, court house addn. imprvs. $700,000. Stiles, Roberts & Assocs., 3307 Avenue X, Lubbock, archts. CD 7/14.

▲ **Tex., Victoria** — SCHOOLS — Victoria Independent School Dist., Victoria, bond election September 17, F. W. Gross High School addn., $375,000; conversion Welder High School into junior high school, $350,000; Lone Tree Elementary School, $365,000; Guadalupe Elementary School, $350,000; Senior High School, $2,000,000; Crescent Valley Elementary School, $375,000; underground utility lines, $135,000. Bond election date changed. CD 7/25.

▲† **W. Va., Parkersburg**—COURT HOUSE, etc.—General Services Admin., P. Bldgs. Serv., General Service Bldg., Wash. 25, D. C. court house and office, $1,722,841.

COMMERCIAL BUILDINGS

Ark., Little Rock—HOUSING—Gus Ottenheimer, 5005 Crestwood St., housing, Cloverdale Subdivision, sewage treatment plant, $750,000. G. A. Denham, Rector Bldg., engr.

▲ **Calif., Fair Oaks**—HOMES—Sierra View Builders, 5840 San Juan Ave., 1,500 homes in North Ridge Hills subdivision, $20,000,000.

▲ **Calif., Sacramento**—HOMES—K. R. Homes Inc., 2901 Mt. Diablo Blvd., Walnut Creek, 1,500-home subdivision area of San Juan Ave. and S. Mariposa Rd., $20,000,000.

▲ **Calif., San Bernardino**—DWELLINGS, SHOPPING CENTER—W. R. Buster & Assocs., c/o Wm. F. Mellin, archt., 671 "D" St., shopping center, 40 St. between Waterman and Lugo Ave. $1,000,000; 96 dwellings, $1,920,000. CD 11/20/53.

Conn., Hartford—SHOPPING CENTER—John E. Hayes Realty Co., 855 Asylum Ave., Hartford, shopping center, corner Hammer and Georges Sts. approx. 6 acres, $750,000.

▲ **Fla., Miami Beach**—OFFICE—Miami Beach Federal Savings & Loan Assn., Lincoln Rd. and Washington Ave. 14-story office. $2,000,000.

Ind., Indianapolis—CLUBHOUSE—Broadmoor Country Club, 2155 Kessler Blvd. W. Dr. plans by Merritt Harrison, Archt. & Bldr. Bldg., clubhouse, $500,000.

Md., Bethesda—OFFICE—Bethesda Medical Building Co., Inc., c/o Stanley H. Arthur, archt., 8218 Wisconsin Ave., N. W., Wash., D. C., 6 story office, 8216 Wisconsin Ave., $500,000.

Mass., Worcester—HOSPITAL—Memorial Hospital, 119 Belmont St., plans by G. Adolph Johnson, 340 Main St., hospital addn., $500,000.

▲ **Mich., Taylor**—SHOPPING CENTER—J. F. Ferry Co., 1601 Grand River, Detroit, shopping center, Eamon Park, $1,100,000.

▲ **Nev., Las Vegas**—DWELLINGS—American Homes, Inc., Box 1333, plans by Wm. M. Bray, 962 N. La Cienega Blvd., Los Angeles, Calif., 208 concrete block dwellings, $2,100,000.

Nev., Reno—MOTEL—Towne House Motor House, Inc., c/o Frank Humphrey Realty Co., 1700 E. 2nd St., 82-unit motel corner W. 2nd St. and Chestnut St. $850,000.

▲ **N. Y., New York**—OFFICE—Irving Maidman, 1501 Broadway, Zone 36, plans by Charles N. & Selig Whinston, Grand Central Terminal Bldg., Zone 17, 15 story office at Seventh Ave. northwest corner of 41 St., $2,500,000.

▲ **O., Brecksville**—George Darmstatter, 12911 Snowville Rd., 32 homes Echo Hill Sub-division, $1,120,000.

▲ **O., Cincinnati**—HOME—Catholic Diocese of Cincinnati, Commercial Square, plans by Betz & Benemper, Scott St., Covington, Ky., home for aged on 3-acre tract at 1950-60 Madison Rd., $1,250,000. Bids probably in Nov.

▲ **O., Cincinnati**—HOMES—Cedar Grove Homestead Assoc., Inc., 509 Central Ave., 250 homes on 66-acre tract on Sheffield Rd. west of Springfield Pike, $3,500,000. Theodore Berry, 509 Central Ave., owner engr.

▲ **O., Cincinnati**—HOME AND HOSPITAL—Salvation Army, 114 E. Eighth St., plans by James Ritchie Assoc., 135 Clarendon St., Boston, Mass. and E. C. Landberg & Assoc., 114 Garfield Pl., Cincinnati, Catherine Booth Home and Hospital an 3½-acres bonded by Harvey, Glenwood and Washington Aves., $1,000,000. Bids early in 1956 .

▲ **O., Cleveland**—CLASSROOM—Western Reserve University, 10940 Euclid Ave., Zone 6, plans by Garfield, Harris, Robinson & Schafer, 1740 E. 12 St., Zone 14, 5 story, L-shaped classroom bldg. incl. 40 classrooms, 5 conference rooms, industrial laboratory, audio-visual center, student and faculty recreation lounges, kitchenettes and administrative offices, $1,500,000. CD 5/31/50.

▲ **O., Dayton**—SHOPPING CENTER—Linden Shopping Center, Inc., c/o Sam Levin, 5327 W. Third St., 1 story, brick shopping center incl. 30 stores on south side of Linden Ave. between Woodman Dr. and Spinning Rd., $3,000,000.

O., Maple Heights—HOMES—A. Siegler & Sons, 5117 Lee Rd., Bedford, 33 homes 'Longview Acres' on Warrensville Center Rd., Raymond St., $561,000.

▲ **O., Youngstown**—STORE—Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill., 2 story, main department store will front on Market St. between Hylda Ave. and E. Florida Ave. extending back toward Youngstown and South R. R. tracks; garden shop will be to the north across Hylda Ave. also service station; 2 story warehouse 3 blocks south on E. Avondale Ave., Cottage Grove Ave. and Brooklyn Ave., $8,000,000. Construction to begin this fall.

▲ **Pa., Pittsburgh**—HOSPITAL—St. John's General Hospital, McClure Ave., plans by Neil & Hoover, 1206 Century Bldg., 5 story, bsmnt., brick, block, steel hospital addn., $1,500,000. CD 2/21/46.

▲ **S. C., Clinton**—COLLEGE BLDGS.—Presbyterian College, Marshall, Brown, pres., Clinton, college buildings. $2,000,000. Start immediately.

▲ **Tex., Beaumont** — SHOPPING CENTER — Gateway Shopping Center, c/o Dr. N. Jay Rogers and Theodore W. Berenson and Wm. D. Lane, 50 Federal St., Boston, Mass., shopping center, main bldg., 24-acre tract, Hy. 90 Freeway Exten. $1,750,000.

▲ **Tex., Bellaire**—STORE—Battelstein's Inc., 812 Main St., Houston, store. $2,750,000.

▲ **Tex., Dallas**—APARTMENT—Edward T. Dicker and Jerome Frank, 911 St. Joseph St., plans by Howard R. Meyer, 2907 Maple St., 22-story, 102 unit, masonry, steel luxury apartment skyscraper incl. two penthouses, on Turtle Creek Blvd. between Lemmon and Holland Sts., $4,500,000. CD 3/15/50.

▲ **Tex., Dallas**—OFFICE—Spartan National Life Insurance Co., c/o Jack C. Vaughn, Merc. Securities Bldg., plans by Wyatt C. Hedrick, archt.-consult. engr. 904 Fort Worth Ave., 15-story, bsmnt. office, Commerce and Prather Sts. $2,750,000.

Tex., Harlingen—MOTOR HOTEL—Sun Valley Hotel, Harlingen, 150-unit motor hotel. $875,000.

Tex., Houston — APARTMENT Harry Brockstein (trustee), 2211 Chenevert St., 60-unit apartment, 1.72 acres corner Griggs Rd. and Tierwester. $500,000.

▲ **Tex., Midland**—HOSPITAL—Midland Hospital Corp., Midland, plans by Preston M. Geren, 1607 Fort Worth Natl. Bldg., Fort Worth, hospital, $1,250,000. CD 6/13.

▲ **Tex., Pasadena**—OFFICE, etc.—Channel Motel Corp., c/o Drs. Jack and Harry Blankfield, 617 Tatar St., Houston, 10-story 100x100 ft. office, bsmnt. garage. $1,150,000; motel units $350,000 adjacent to Corrogan Bldgs. Francis J. Niven & Assocs., 3908 Main St., Houston, consult. engrs.

▲ **Tex., Pasadena**—HOTEL, COMMERCIAL—Williams & Dunlap, Inc., 1200 Bissonnet St., Houston, plans by Charles S. Chase, 1200 Bissonnet St., Houston, 150-room, 50,000 sq. ft. masonry hotel and commercial

bldg., 6-acre tract, fronting 690 ft. on Washburn Tunnel Rd. $1,500,000.

Wash., Auburn—HOUSES—Lone Bros. Constr. Co., Auburn, plans by D. Allison, Auburn and J. Bryant, Burien, 57 houses, $600,000.

Wash., Bellevue—CHURCH, etc.—Sacred Heart Parish, Bellevue, plans by J. W. Maloney, Central Bldg., Seattle, Zone 4, church and rectory. $500,000. Work to begin about Jan. 1.

▲ B. C. New Westminster — HOSPITAL — Sisters of Charity, New Westminster, 7-story, 150-bed rein.-con., brick exterior hospital for St. Marys Hospital. $2,000,000. A. C. Smith & Assocs., 1531 W. Pender St., Vancouver, consult. engrs.

▲ N. B., Moncton—HOUSING—Taylor & Steeves Ltd., 880 Main St., housing subdivision incl. 400 to 450 homes in 90-acre section $6,000,000. William H. Crandall, 134 King St., Moncton, consult. engr.

INDUSTRIAL BUILDINGS

▲ Ala., Listerhill—PLANT ADDN.—Reynolds Metal Co., Listerhill, plant addn. $22,000,000.

▲ Ala., Myrtlewood—PAPER MILL—Marathon Corp., Menasha, Wis., pulp and paper mill near here. $30,000,000.

Ga., Atlanta—WAREHOUSE, OFFICE—Sylvania Electric Products (Southeast Div.) 660 Murphy Ave. S.W., warehouse, office. $500,000.

▲ Ga., Brunswick—PLANT—Solvay Process Div., Allied Chemical & Dye Corp., 61 Broadway, New York, N. Y., plant to produce 100 tons chloride and 150 tons caustic soda per day. Exceed $2,000,000.

Ill., Belleville—BOTTLING PLANT ADDN.—Carling Brewing Co., John H. Morris, gen. mgr., 1201 W. "E" St., 65,000 sq. ft. beer bottling plant addn., $650,000.

▲ Ill., Chicago—PLANT ADDN.—Chicago Daily News, Inc., 400 W. Madison St., 5-story newspaper plant addn. $3,000,000.

▲ Ill., Wood River—REFINERY—Shell Oil Co., Inc., c/o Wood River Refinery, Wood River, Ill. and 50 W. 59 St., New York, N. Y., water treatment facilities incl. equipment to purify waste waters of refinery prior to emptying into Mississippi River, $1,000,000. CD 11/14/51.

▲ Iowa, Cedar Rapids—PLANT ADDN.—Allis-Chalmers Co., P. O. Box 512, Wilwaukee, Wis., branch plant addn. $1,800,000.

O., Cleveland—ENGINEERING SHOPS—Industrial Rayon Corp., Union Commerce Bldg., Zone 14, 1 story, 80,000 sq. ft. central engineering shops at W. 158 and Puritas Rd., $500,000. Jules Schwartz & Assoc., 2536 Euclid Ave., Zone 15, consult. engrs., L. L. Malm, c/o owner, engr.

▲ O., Evendale—INDUSTRIAL—P. G. Graves, Hulbert Block, Sixth St., Cincinnati, development of 46 acre industrial tract on west side Reading Rd., north of Glendale-Milford Rd., $9,000,000. Ayers & Graf, 520 Linton St., Cincinnati, consult. engrs. To start at once.

O., Lima—PLANT—Standard Oil Co. of Ohio, Midland Bldg., Cleveland, Zone 16, dry ice plant to be first expansion of its petrochemical plant, $800,000.

▲ Tex., Arlington—PLANT—Menasco Mfg. Co., 805 S. Fernando Blvd., Burbank, Calif., plans by Wyatt C. Hedric, 1200 T & P Bldg., Fort Worth, airplane parts mfg. plant, $5,000,000.

▲ Tex., Eldorado—PLANT, etc.—Sinclair Oil & Gas Co. & Assocs., Gulf Bldg., Houston, natural gas products plant, $2,750,000; storage and loading facilities, $100,000; some field gathering gas lines, $90,000 in Huildale Field zone near here.

▲ Tex., Fort Worth—PLANT—Menasco Mfg. Co., 805 S. San Fernando Blvd., Burbank, Calif., plans by Wyatt C. Hedrick, archt.-engr., T. & P. Passenger Station Bldg., 100,000 sq. ft. masonry, steel plant, 2 mi. southwest of Carter Field. $1,750,000.

▲ Tex., Port Lavaca—PLANT—Aluminum Co. of America, c/o Frank L. McGee, Port Lavaca, aluminum plant, $40,000,000; storage $500,000 at Point Comfort.

▲ Alta., Edmonton—PLANT—Western Plywood Co. Ltd., 900 E. Kent St., Vancouver, B. C., plywood plant. $1,000,000.

N. S., Halifax—WAREHOUSE, GARAGE—Maritime Telegraph & Telephone Co. Ltd., 92 Hollis St. warehouse and garage, $600,000. Bids in September. CD 12/20/54.

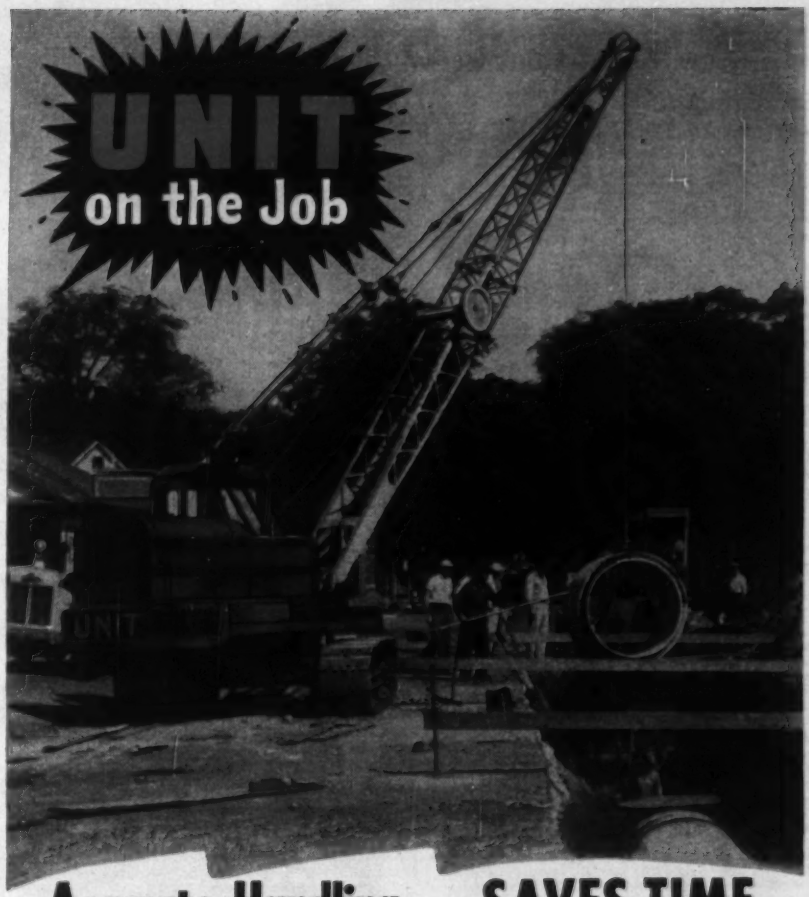
▲ Ont., Bancroft—MILL—Bancroft Uranium Mines, Ltd., 25 Adelade St. W., Toronto, 1,000-ton uranium concentrates mill. $9,000,000.

▲ Ont, Clarkson — PLANT OFFICE — St. Lawrence Cement Co., Box 1156, Villeneuve, Que., plant and office proj., Est. $15,000,000. Portland & Baker, 490 Jarvis St., Toronto, archts. for office bldg. General Engineering Co. Ltd., 100 Adelaide St. W., Toronto, engrs. CD 7/1.

UNCLASSIFIED

Calif., San Diego—GOLF COURSES—City, 1600 Pacific Hy., Zone 1, two golf courses at Torrey Pines Mesa. $506,000.

▲ Washington-Oregon-Idaho — GAS SYSTEM — Cascade Natural Gas Corp., Securities Bldg., Seattle 1, Wash., natural gas distr. sys. in Anacortes, Bellingham, Bremerton, Burlington, Clarkston, College Pl., Grandview, Granger, Kennewick, Port Orchard, Prosser, Shelton, Sunnyside, Toppenish, Walla Walla, Wapato, Wenatchee, Yakima and Zillah, Wash.; Eugene, Pendleton and Springfield, Ore.; Lewiston, Idaho. $11,000,000. Bids for first work to be called within 60 days. CD 6/25/54.



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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

August 29 Connecticut

STREETS AND ROADS

August 29 Connecticut August 30 Massachusetts

† **Conn., New London**—BA 8/30—P. Wks. Office, Bldg. 2, Submarine Base, repairs to waterfront Road, Pier 14 to Berth 16, NOY 87749 (SF), Spec. 46861.

† **Mass., Chicopee Falls**—BULK STORAGE FACILITIES—BA On Or About 9/14—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, addnl. bulk storage facilities, Westover Air Force Base, ENG-19-016-56-23. $75,000-$100,000.

▲† **Mass., Chicopee Falls**—APRON—BA 9/16—U. S. Eng., 857 Commonwealth Ave., Boston, operational parking apron, Westover Air Force Base, ENG-19-016-56-21, $2,000,000, Hayden, Harding & Buchanan, Park Square Bldg., Boston, engrs. CD 8/12.

BUILDINGS—BA

▲ **Mass., Waltham** — ADMISSIONS — BA 9/2 — State, Dpt. Mental Health, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, M-615, admissions bldg., Metropolitan State Hospital. $1,725,150. Plans deposit $100, refundable. Shepley, Bulfinch, Richardson & Abbott, 1 Court St., Boston, archts. CD 7/7.

Mass., Sterling—SCHOOL—BA 9/7—Town, Main St., elementary school. $412,000. Perley F. Gilbert & Assoc., Inc., 8 Merrimack St., Lowell, archt. CD 6/25/54.

Conn., Windsor—SCHOOL—BA 9/8—Town, P. Bldg. Comn., F. L. Chabot, 51 Mountain Rd., site work for elementary school, Clover St. Warren H. Ashley, 967 Farmington Ave., West Hartford, archt. Marchant & Minges, 967 Farmington Ave., West Hartford, engrs. Charles C. Currier & Assoc., 967 Farmington Ave., West Hartford, site engrs. CD 3/17.

▲ **Mass., Sharon**—SCHOOL—BA 9/22—Town, c/o Superintendent Schools, S. Main St., high school, Pond St. between Ames and Lake Massapoag Sts., $1,500,000. Plans deposit $75. Anderson & Nichols & Co., 150 Causeway St., Boston, archts. CD 6/21.

HEAVY CONSTRUCTION—LB & CA

† **Nickerson & O'Day** 133 Elm St., Bangor, Me. LB $119,000, est. $120,000. special weapons facilities, Dow Air Force Base, BANGOR, ME. Procurement Office, Dow Air Force Base, Bangor, Me. Bids Aug. 5. CD 7/26.

RHODE ISLAND—State of R. I. & Prov. Plants, P. A., State House, Providence,

General Eng. & Constr. Co., 12 Stukely St., Providence, R. I., LB, $473,110. Proj. 96, Highway and bridge over Sakonnet River, Providence. Bids Aug. 10. CD 8/2.

BUILDINGS—LB & CA

Melvin W. Smallwood, c/o Hodgson Houses, Inc., Dover, Mass. Owner Builds. $700,000. RESIDENTIAL DEVELOPMENT "Carol Acres" 60 houses, BOXFORD, MASS.

▲ **Samuel Stern**, 137 Sewall Ave., Brookline, Mass. Separate Contracts. $1,000,000. APARTMENTS, 43 suites and 80 car garage in bsmnt., BROOKLINE, MASS. Thomas Byrd Epps, Inc., 73 Newbury St., Boston, Mass., archt.

Davmar, Inc., 4 Oak St., Dedham, Mass. Owner Builds. $344,000. RESIDENTIAL DEVELOPMENT, "Southgate" 16 houses, DEDHAM, MASS.

▲ **Jefferson Constr. Co.**, 75 First St., Cambridge, Mass. CA $1,607,000, est. $1,600,000. Regional High SCHOOL, DENNIS, MASS. Dennis-Yarmouth School Dist., Wallace Liberty, chn., West Yarmouth, Mass. CD 8/8, under LB.

Western Mass. Contg. Engineers, Inc., Sumner St., Lee, Mass. CA Approx. $200,000. WAREHOUSE, PITTSFIELD, MASS. Samuel W. & Sumner L. Poorvu, 209 Washington St., Boston, Mass. Bids Aug. 4. CD 8/3.

Owner, c/o L. F. Freitas, agt., 150 Main St., North Easton, Mass. Separate Contracts. $360,000. RESIDENTIAL DEVELOPMENT, "Presidential Park" 24 houses, Rte. 138, SOUTH EASTON, MASS. CD 8/3.

Park Constr. Co., Inc., 40 Court St., Boston, Mass. LB $641,000, est. $650,000. M-402 Contr. 1 SERVICE BLDG. addn., Walter E. Fernald State School, Waverly (Section Belmont), WALTHAM, MASS. State, Dpt. Mental Health, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids Aug. 11. CD 7/28.

▲ **Merrill C. & E. William Nutting**, Weston, Mass. Separate Contracts. $2,500,000. RESIDENTIAL DEVELOPMENT, "Briarcliff Estates" 122 houses, WESTON, MASS.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

August 30 Maryland September 9 Pennsylvania

New Jersey—LIGHTING FACILITIES—BA 8/30—New Jersey Turnpike Auth., Administration Bld., New Brunswick, Contract N-30B, installing roadway lighting facilities, incl. 3 transformer stations, from east abutment of Newark Bay Bridge just west of Hudson Blvd. in City of Bayonne Hudson Co., to south side of Holland Tunnel Interchange, Communipas Ave. Toll Plaza which is located just south of Communipaw Ave. in Jersey City, Hudson Co. in connection with constr. Newark Bay-Hudson County Extension of New Jersey Turnpike. Plans deposit $10. Howard, Needles, Tammen & Bergendoff, 55 Liberty St., New York 5, N. Y., consult. engrs.

NEW JERSEY—BA 8/30—New Jersey Turnpike Auth., Administration Bldg., New Brunswick,

Hudson Co.—Contract N-56, misc. construction, incl. grading drainage, paving, removal of existing construction, modification and/or reconstr. existing structures, new structures and other incidental work, between Communipaw Ave. and Grand St. and between Third St. and Jersey Ave., Jersey City, in connection with Newark Bay-Hudson Co. Extension, N. J. Turnpike. Plans deposit $10. Howard, Needles, Tammen & Bergendoff, 55 Liberty St., New York 5, N. Y., consult. engrs.

New York—PASSENGER ELEVATORS—BA 8/30—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, furnishing, installing passenger elevators and electrical equip. for 181 St. Station, Broadway-Seventh Avenue Line, IRT Division, Manhattan Boro, Contr. E-130 No. 2 Electrical Equip. Bids 7/29 rejected. CD 8/9, under LB.

New Jersey—UTILITY, etc.—BA 9/13—New Jersey Turnpike Auth. Administration Bldg., New Brunswick, Contract Nos. N 31-A, N-31-B, N-31-C, N-31-D, N-31-E, utility building, toll islands and associated work for Newark Airport interchange on Newark Bay-Hudson County Extension. Plans deposit $10. Lorimer & Rose, 254 W. 54 St., New York 19, N. Y. consult. archts.

BUILDINGS—BA

▲ **N. J. Riverton**—SCHOOL—BA 8/30—Roman Catholic Diocese of Trenton, 155 Warren St., Trenton, high school, $2,500,000. Paul Henon, Fox Bldg., Phila., Pa., archt.

Pa., Trevose Heights—CHURCH—BA 9/2—Haag & D'Entremont, archts., Jenkintown, church, for Assumption of the BVM Church, Trevose Heights, Pa. $350,000 CD 5/23.

▲ **N. Y., Glen Cove**—HOUSING—BA 9/8—Glen Cove Housing Auth., Bridge St., 98 family housing units, incl. street and yard constr. Plans deposit $75. Fred G. Frost Jr. & Assoc., 144 E. 30 St., New York, Zone 16, archts. CD 9/24/53.

Del., Newark—HEALTH CENTER—BA 9/9—University of Delaware, Newark, student health center. $350,000. E. William Martin, 830 West St. Wilmington, archt. CD 3/11/46.

D. C., Wash.—OFFICE—BA 9/15—National Rural Electric Co-operative Assn., 1303 New Hampshire Ave. N.W., Wash., D. C., 8 story office, Florida Ave. and 20 St. N.W. $900,000. Plans deposit $25. Mills, Petticord & Mills, 3308 14 St. N.W., archts. CD 5/3.

Pa., West Grove—SERVICE—Bids Asked—Phila. Electric Co., Ninth and Sansom Sts., Phila., service bldg. $100,000. N. C. McHugh, co. engr. CD 8/3.

BUILDINGS—SLC

▲ **Del., Wilmington** — LABORATORY — Hercules Powder Co., Delaware Trust Bldg. soon lets contract laboratory, Lancaster Pike, $1,000,000. Voorhees, Foley, Smith & Smith ,101 Park Ave., New York, N. Y., archts. CD 6/24.

Pa., Pittsburgh—GARAGE—T. A. McCormick Co., Soc. for Savings Bldg., Cleveland, O., soon lets contract, 1 level, 160x280 ft., steel, concrete block parking garage. $500,000. Wyatt C. Hedrick, T & P Bldg., Fort Worth, Tex., archt.

HEAVY CONSTRUCTION—LB & CA

MacAsphalt Constr. Corp., 33-15 Lawrence St., Flushing, N. Y: LB $116,245, est. $106,872. grading, curbing, laying sidewalks, constr. mails and seepage basins and paving with preliminary pavement of asph. macad., Little Neck Parkway from 72 Ave. to Union Turnpike and grading outside present moved paved area curbing, constr. sidewalks, seepage basins Little Neck Parkway from 86 to 87 Aves; and grading, gutter space, curbing, relaying sidewalks, constr. seepage basins on south side of Hillside Ave. from 208 to 209 Sts, Queens Boro, NEW YORK. President Queens Boro, Boro Hall, 120-55 Queens Blvd., Kew Gardens 24, N. Y. Bids Aug. 11. CD 8/3.

▲ **T. & T. Contg. Corp.**, 4814 Glenwood Rd., Brooklyn, N. Y. LB $2,330,751, est. $2,948,700 (7 bidders) storm water sewer, appurtenances in 122 Ave. from Springfield Blvd., west side to 199 St.; 199 St. from 122 Ave. to Linden Blvd.; Linden Blvd. from 199 to 198 Sts; 198 St. from Linden Blvd. to 109 Ave.; 109 Ave. from 198 to 201 Sts; 201 St. from 109 to 100 Aves; 100 Ave. from 201 to 202 Sts; constr. combined sewers in 122 Ave. north and south side, from Springfield Blvd. west side to Nashville Blvd.; constr. sanitary sewers in 199 St. east and west side from Nashville Blvd. to 120 Ave.; 198 St. from 114 to 113 Aves; and in 109 Ave. south side from 198 to 201 Sts; reconstr. sanitary sewers in 199 St. east and west side from 120 Ave. to Linden Blvd.; 198 St. east and west side from Linden Blvd. to 114 Ave. and from 113 Ave. to Hollis Ave.; 201 St. east and west side from 109 to 100 Aves; and 100 Ave. north and south side from 201 to 202 Sts; and combined sewer, appurtenances in 122 Ave. from Nashville Blvd. to 197 St. easterly location; 197 St. easterly location from 122 to 120 Aves; 198 St. from 122 to 120 Aves; and sanitary sewer, appurtenances in 199 St. from 109 Ave. south side to point about 170 ft. south of 109 Ave., Fourth Ward, NEW YORK. President Queens Boro, Queens Boro Hall, 120-55 Queens Blvd., Kew Gardens 24, N. Y. Bids Aug. 10. CD 7/26.

NEW JERSEY—New Jersey Turnpike Auth., Administration Bldg., New Brunswick,

South Jersey Constr. Co., 209 Adams Ave., Riverside, N. J., LB, $692,874. Contract W-8, paving, curbing, sidewalks, topsoiling and seeding, fence and gates, area lighting, traffic signs, etc. in connection with constr. of service areas 6S and 6N in Mercer Co. Bids Aug. 11. CD 7/26.

▲ **Berlanti Constr. Co. Inc.**, 15 Oakland Ave., Harrison, N. Y., CA, $6,265,805, general contract No. 1-G, sewage treatment plant, pumping station, sewerage and street imprvs. HOBOKEN, N. J. City, City Hall, Hoboken, N. J. Awarded Aug. 17. CD 12/9/53;

Badaracco Bros. & Co., 403 Washington St., Hoboken, N. J., CA, $91,900 electrical work. (Hoboken, N. J.)

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

Pa.—**Frank Donatelli & Co., Inc.**, Broad and Euclid Ave., Pittsburgh 6, Pa. LB $2,779,706. wid'n. 36,551 ft. existing road with plain c. conc. base, surf. new and existing base with bit. surf. variable width, Churchill and Monroeville Boros, Wilins Twp., T.R. U. S. 22, Allegheny Co.;

Pa.—**A. C. Hack & Sons, Inc.**, P. O. Box 447, Bloomsburg, Pa. LB $394,135. continuous deck girder bridge, rein.-con., brick, crushed aggregate base with bit. surf. 24 ft. wide through plate girder railroad overpass bridge, Catawissa Twp., Catawissa Boro, T.R. 242, Columbia Co.;

Pa.—**A. B. Cole**, Meshoppen, Pa. LB $100,000. surf. 15,257 ft. existing road with bit. surf. variable width Kingston and Dallas Twps., Dallas Boro, T.R. U. S. 309, Luzerne Co.;

Pa.—**Glasgow, Inc.**, Willow Grove Ave., Limekiln Pike, Glenside, Pa. LB $83,550. constr. 2,700 ft. crushed aggregate base with bit. surf. variable width Upper Providence Twp., Royersford Boro, L.R. 46014 (1), Montgomery Co.;

Pa.—**John H. Swanger, Inc.**, P. O. Box 1214, Lancaster, Pa. LB $253,197. constr. 11,354 ft. crushed aggregate base with bit. surf. 18 ft. wide, 2 prestressed precast rein.-con. bridges, Towamensing and Penn Forest Twps., T.R. 242, Carbon Co. Bids Aug. 12. CD 7/15.

BUILDINGS—LB & CA

Bd. Trustees, Round Swamp and School House Rd., Old Bethpage, N. Y., rejected bids July 1, general constr., heating and ventilating, plumbing and sanitary, electrical work for Old Bethpage Grade School, east side of Round Swamp Rd., north of Old Bethpage Rd., BETHPAGE, N. Y. Will re-advertise. CD 6/17.

† **U. S. Eng.**, 111 E. 16 St., New York 3, N. Y., cancelled bids to have been opened Sept. 15, 600-man unit ARMY TRAINING CENTER, HACKENSACK, N. J. $100,000-$500,000. CD 6/16.

† **U. S. Eng.**, 111 E. 16 St., New York 3, N. Y., cancelled bids to have been opened Aug. 30, 1,000-man unit ARMY TRAINING CENTER, NEWARK, N. J. $100,000-$500,000. CD 6/16.

Navarro Corp., 6219 Broad St., Pittsburgh, Pa. CA Est. $400,000. 1 and 2 story, part bsmnt., steel, brick parochial SCHOOL, ALIQUIPPA, PA. Our Lady of Fatima R. C. Congregation, Aliquippa, Pa. Bids July 28. CD 7/22.

Suburban Home Builders, 1704 Chelsea Ave., Melrose Park, Pa. Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, Ridge Ave., AMBLER, PA.

Jack Steele Constr. Co., 1300 W. Hunting Park Ave., Phila., Pa. CA $100,000. WAREHOUSE and OFFICE alterations, 401 N. Broad St., PHILA., PA. Webb & Knapp, Inc., 240 Park Ave., New York, N. Y.

William Linker Co., Inc., 2036 Arch St., Phila., Pa. CA $120,000. 69th Street TERMINAL repair, rebuild, UPPER DARBY, PA. Red Arrow Lines, 69 St., Upper Darby, Pa. Chester Osborn, co. ch. engr.

Paul Cosgrove, 220 N. Church St., West Chester, Pa. Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, West Goshen Twp., WEST, CHESTER, PA.

T. J. Farrell, 335 Riverview Ave., Drexel Hill, Pa. Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, West Goshen Twp., WEST CHESTER, PA.

Delaware Valley Constr. Co., 41 Easton Rd., Willow Grove, Pa. Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, Fern Ave., WILLOW GROVE, PA.

Fred S. Lippert, 6907 Forest Hill Dr., Hyattsville, Md. CA $599,720. CHURCH and RECTORY at present site, HYATTSVILLE, MD. St. Jerome's Catholic Church, 43 Ave. and Hamilton St., Hyattsville, Md. Awarded July 27. CD 12/17.

▲ **Hillside Development Corp.**, 4242 Fourth St. S.E., Wash., D. C. CA $1,300,000. 100 detached frame, shingle HOMES, ROCKVILLE, MD. Owner, c/o Morton Noble, archt., 2000 P St. N.W., Wash., D. C.

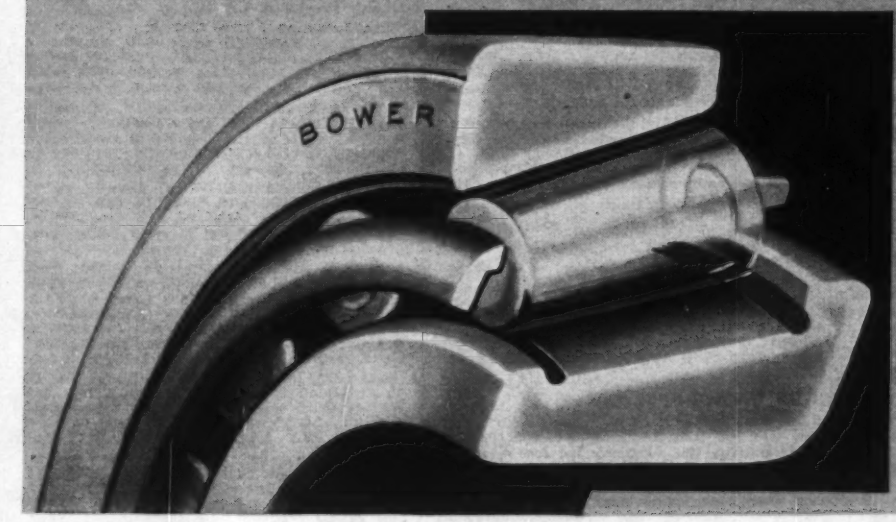
▲ **John Tester & Son, Inc.**, 3600 Commonwealth Ave., Alexandria, Va. CA $1,926,264. Northwood Junior-Senior high SCHOOL, Old Bladensburg Rd., Silver Spring, ROCKVILLE, MD. Montgomery Co. Bd. Educ., Rockville, Md. Wilson & Denton, 1022 20 St., Wash., D. C., archts. CD 8/27/54.

▲ **Standard Constr. Co.**, 1010 Vermont Ave. N.W., Wash., D. C., CA $2,500,000. 160-unit APARTMENT, Connecticut Ave., between Cumberland and Davenport Sts. N.W., WASH., D. C. Gerson, Samuel & William Nodlinger, 2000 P St. N.W., Wash., D. C. Berla & Abel, 1636 Connecticut Ave. N.W., Wash., D. C., archts.

William B. Mitten & Sons, Dover, Del. Separate Contracts, $350,000. RESIDENTIAL DEVELOPMENT, Shady Lane, DOVER, DEL.

(Continued on page 72)

Bower spher·o·honed design provides better bearing lubrication



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The large oil groove built into Bower Spher-O-Honed bearings is just *one* of several important Bower design features which reduce maintenance and increase efficiency. Combine it with generated spherical roll-heads and a higher flange surface, and smooth, precision-honed races, and you have the basic elements of Spher-O-Honed design.

A careful look at the illustration above will show you other important Bower features, too. Note particularly that the roller heads contact the flange over a wide two-zone area—thus reducing wear and minimizing resultant "end play."

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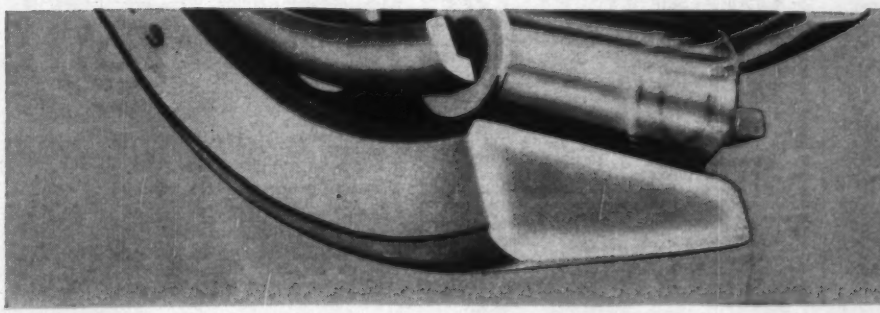


A COMPLETE LINE OF TAPERED, STRAIGHT AND JOURNAL ROLLER BEARINGS

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

September 2 Tennessee

STREETS AND ROADS

September 2 Tennessee

† **Louisiana**—BA 9/1—U. S. Eng., foot of Prytania St., New Orleans, constr. Item M-74.6 Belle Chasse-Concession Levee, topping, slope pavement 2.500 cu. yd. topping, 1,945 sq. pavement, Plaquemines Parish, Inv. 56-22. CD 6/26/46.

† **S. C., Myrtle Beach**—SHOP, etc.—BA About 10/6—U. S. Eng., 31 Customhouse, Charleston, automotive maintenance shop, motor pool paving, automotive dispensing sys., Myrtle Beach Air Force Base, ENG-38-081-56-9.

BUILDINGS—BA

Ky., Ludlow—SCHOOL—BA 9/22—Bd. Educ., Elm and Adela Sts., elementary school, Oak St. $400,000, Potter, Tyler, Martin & Roth, 128 E. Sixth St., Cincinnati, O., archts. K. M. Reik & Assoc., Elm St., Cincinnati, O., engrs. CD 9/28.

HEAVY CONSTRUCTION—LB & CA

▲ **Alexandria Water Co.**, 107 N. St. Asaph St., Alexandria, Va., Owner Builds. $2,500,000. 10-billion gal. reservoir at Occoquan, ALEXANDRIA, VA. American Water Works, Inc., 310 Center Plaza, Phila., Pa., engr.

† **J. L. Coe Constr. Co., Inc.**, 508 Builders Bldg., Charlotte, N. C., CA, $625,364. auditorium and navy exchange, U. S. Naval Air Station, NOY 85871, Spec. 43075, OCEANA, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids June 16. CD 6/22, under LB.

NORTH CAROLINA—State Hy. & P. Wks. Comn., Raleigh, **Clement Bros. Co., Inc.**, Lenoir, N. C., CA, $502,518, est. $400,000-$500,000. Proj. 6264, grading, SABC, BST and structures 2.59 mi. Catawba Co. Bids July 26, awarded Aug. 12. CD 7/29, under LB.

▲† **Rea Constr. Co.**, P. O. Box 2015, Charlotte, N. C., CA $1,483,500. resurfacing, grading, storm drainage, Naval Auxiliary Air Station, Cerry Field, NOY 86919, PENSACOLA, FLA. Dist. P. Wks. Officer, U. S. Naval Base, Charleston, S. C. Bids June 9. CD 5/19.

† **Walter P. Villere**, 4405 River Rd., New Orleans 21, La. CA $148,690. Algiers Navigation Canal Levees, cross dike, gap closures and raising low levee 179,500 cu. yd. levee, Plaquemine Parish, Inv. 55-267, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids July 20. CD 7/8.

† **Richard Coco**, Box 426, Marksville, La. CA $133,290. 117,000 cu. yd. levee enlargement, Iberia Parish, Inv. 56-13, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Awarded Aug. 10. CD 6/26/46.

† **Joe E. Freund**, 1414 Auburn Ave., Monroe, La. CA $176,170. constr. Item A, Charenton-Verdunville Levee Enlargement, involving 216,000 cu. yd., St. Mary Parish, Inv. 56-6, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids Aug. 11. CD 7/22.

Austin Bridge Co., 1000 Singleton St., Dallas, Tex. LB $921,000. railway bridge, vertical lift type, MORLEY, LA. Texas & Pacific Ry., R. J. Gammie, ch. engr., Texas & Pacific Bldg., Dallas, Tex. Bids July 15.

† **Combustion Eng., Inc.**, 911 W. Main St., Chattanooga, Tenn., LB $324,289, est. $390,322. nitrogen-storage facility for propulsion wind tunnel, Arnold Engineering Development Center, TULLAHOMA, TENN. U. S. Eng., Tullahoma, Tenn. Bids July 20. CD 7/19.

† **Consolidated Contractors**, 1489 Thomas St., Memphis, Tenn., CA $543,721, foundations and misc. work on transonic circuit of propulsion wind tunnel, Arnold Engineering Development Center, TULLAHOMA, TENN. U. S Eng., Tullahoma, Tenn. CD 6/21, under LB.

BUILDINGS—LB & CA

Chris Larsen Co., 915 Maratime Bldg., New Orleans, La. CA $400,000. 44,410 sq. ft. auto parking GARAGE, Cleveland Ave., NEW ORLEANS, LA. Texas Autopark Inc., 328 Oil & Gas Bldg., Houston, Tex. Coleman Kuhn, National Bank of Commerce, New Orleans, La., engr.

Roy Ryan & Sons, Inc., 1400 Grove St., Evansville, Ind. CA $655,700. Contr. 110, 48 ft. electric power plant exten., equip., HENDERSON, KY. City, Henderson, Ky. Bids Aug. 10. CD 7/22.

▲ **Dahlem Constr. Co., Inc.**, 984 Baxter Ave., Louisville, Ky. CA Est. $2,000,000. DEPARTMENT STORE and SHOPPING CENTER, SHIVELY, KY. J. Bacon & Sons, 332 W. Market St., Louisville, Ky. Wagner & Potts, Fincastle Bldg., Louisville, Ky., archts.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

Mich., Detroit—BA 8/30—At office, M. F. Wagnitz, city engr., 528 City-County Bldg., Zone 26, Group 55-6, grading, draining, paving 1,665 ft. John Kronk St. from Lonyo to Central Sts. PW-2655F; 331 ft. Ambet St. from Grand River to Putt St. PW-2677W; 284 ft. Anson St. from Pulaski to M. C. R. R. R/W, PW-2678W; 443 ft. Dolphin St. 388.76 ft. south of Outer Drive to 54.5 ft. north of Outer Drive, PW-2679W; 1,089 ft. Whitlock St. from Rutland to Woodmont Sts. PW-2680P; 578 ft. Pembroke St. from Meyers to Monte Vista Sts. PW-2682W; 2,572 ft. Houghton St. from Seven Mile to Pembroke St. PW-2684W; 1,120 ft. Lappin St. from Outer Drive to Algonac St., PW-2685F "A"; 1,190 ft. Lappin St. from Algonac to Hoover St. PW-2685 "B", for City. CD 3/30/43.

BUILDINGS—BA

O., Avon—SCHOOL—BA About 9/1—Village, Bd. Educ., high school. $500,000. Walter G. Caldwell, Engineers Bldg., Cleveland, Zone 14, archt. Richard Gensert, Williamson Bldg., Cleveland, Zone 14, struct. engr. Bennett Levin & Assoc., 13110 Shaker Square, Cleveland, Zone 20, heating and ventilating engrs. Robt. A. Secord, 29½ Riverside Dr., Berea, elec. engr.

Mich., Ann Arbor—PRINTING—BA 9/1—Regents University of Michigan, W. K. Pierpont, vice pres., Plant Service Bldg., Forest Ave. and N. University Ave., printing bldg., North Campus, University of Michigan. Plans deposit $10, refundable. Douglas D. Loree, 120 N. Fourth Ave., archt.

▲ **O., Bedford**—SCHOOL—BA 9/1—Marist Order Corp. of Ohio, c/o Stickle & Assoc., archts., 2422 Prospect Ave., Cleveland, Zone 15, masonry Channel High School, $1,000,000.

Wis., Cudahy—MUNICIPAL—BA 9/2—City, City Hall, municipal bldg. $400,000. Extended date. Grassold-Johnson & Assocs., 734 N. Jefferson St., Milwaukee, Zone 2, archts. CD 8/3.

▲ **Wis., Milwaukee**—OFFICE—BA 9/7—Associated Hospital Services, Inc., 826 N. Plankington Ave., office. $1,000,000. Eschweiler & Eschweiler, 720 E. Mason St., Zone 2, archts. Extended date. CD 8/9.

Mich., Ann Arbor—APARTMENTS—BA 9/8—University of Michigan, Bd. Regents, W. K. Pierpont, vice pres., Plant Service Bldg., Northwood Apartments, Group II, north campus, University of Michigan. Plans deposit $50, refundable, Yamasaki, Leinweber & Assoc., 112 Madison St., Detroit, archts.

O., Toledo—SCHOOL—BA 9/8—Bd. Educ., Ottawa Hills School Dist., c/o Peterson, Hoffman & Assoc., archts., 523 Spitzer Bldg., high school addn., alterations. $550,000. Plans deposit $15. Bids 5/26 rejected. CD 11/8.

O., University Heights—STUDENTS ACTIVITIES, etc.—BA In October—John Carroll University, University Heights, (selected list bidders), student activities bldg. and ROTC transportation hall, $843,000. Small, Smith & Reeb, 1010 Euclid Ave., Cleveland, Zone 15, archts. CD 1/22/54.

BUILDINGS—SLC

Ill., Chicago—CHURCH—St. Gall Parish, 55 and Kedzie Sts., soon lets contract church, $600,000. Pavlecic Kovacevic & Ota, 208 S. LaSalle St., Zone 4, archts.

▲ **Ill., Chicago**—SCHOOL—Sisters of Mercy, 99 and Lawndale Sts., soon lets contract, Mother McAuley High School, and faculty bldg. $1,800,000. Fox & Fox, 39 N. LaSalle St., Zone 2, archts. CD 9/29.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,

O.—**Visintine & Co.**, 1315 Edgehill Rd., Columbus, O. LB $1,234,000, est. $1,215,500. (7 bidders) Type T-35 on B-70 and structures 0.666 mi., U.S.R. 33, 15.07 (city of Columbus), U-233 (6), Franklin Co.;

O.—**Bruns Coal Co., Inc.**, Box 991, Zanesville, O. LB $264,556, est. $326,600. (3 bidders) Type T-71 0.67 mi., U.S.R. 50-A-22.82 city of Marietta, U-1059 (4), Washington Co.;

O.—**The Churchill Constr. Co.**, 1533 Shawnee Rd., Lima, O. LB $197,594, est. $198,000. (1 bidder) Type T-35 5.753 mi. S.R. 117-8.66, Allen Co.;

O.—**Wm. L. Schloss Paving Co.**, 9521 Woodland Ave., Cleveland, O. LB $131,766, est. $160,800. (2 bidders) Type T-35 4.092 mi., U.S.R. 6, 24.98, U.S.R. 20-(27.65-3076), village of Euclid, Cuyahoga Co; LB $174,700. (2 bidders) Type T-35 1.645 mi., S.R. 82-(10.89-12.62) villages of Broadview Heights and Brecksville, Cuyahoga Co.;

O.—**Dandrea & Nardini Constr. Co.**, E. 21 and B. & O. R.R., Lorain, O. LB $619,547, est. $637,000. (2 bidders) Type T-35 and structure 6.622 mi., S.R. 18-(24.17-24.65) 0.00, Huron and Lorain Counties;

O.—**Ohio Road Improvement Co.**, 30 E. Broad St., Columbus, O. LB $86,644, est. $89,500. (1 bidder) Type T-35 5.626 mi. S.R. 82-(17.09-18.07) village of Garrettsville, Portage Co.; LB $91,078, est. $92,400. (1 bidder) Type T-35 3.222 mi., U.S.R. 6-28.64, Sandusky Co.;

O.—**B. D. Morgan & Co.**, 215 Charles St., Middletown, O. LB $133,186, est. $142,700. (4 bidders) Type T-35 and structure 0.52 mi. S.R. 741-(12.15-12.54), village of Springboro, Warren Co.;

O.—**Jones Asphalt Paving Co.**, Rte. No. 1, Wooster, O. LB $89,167, est. $89,377. (2 bidders) Type T-30, B-35 and T-35 10.263 mi. Stark Co. Bids Aug. 9. CD 7/13.

Shamrock Constr. Co., Mutual Bldg., Lansing, Mich. CA Est. $400,000. install 23,000 ft. 12 in. high pressure gas line from Tracy St. and Wales Rd. to Navarre Ave.; install 7,300 ft. med. pressure 12 in. line from Edgevale Rd. to Central Ave.; install 16,000 ft. 20 in. line from Glenwood Rd. to Rossford Ordnance Depot, Toledo, OHIO. Ohio Fuel Gas Co., 231 Huron St., Toledo, O. CD 5/11/54.

National Engineering & Contg. Co., W. 4 and Central St., Cleveland 13, O. (1 bidder) LB $810,083, est. $700,000-$800,000. alterations, addns. to westerly sewage plant, CLEVELAND, O. City, Dpt. P. Utilities, City Hall, Cleveland 14, O. Havens & Emerson, 640 Leader Bldg., Cleveland 14, O., engrs. CD 11/7/52.

† **U. S. Eng.**, 237 Fourth Ave., Huntington 18, W. Va. cancelled bids to have been opened Aug. 16, storm drain, Lockbourne Air Force Base, ENG-46-022-56-4, COLUMBUS, O. CD 8/1.

City, City Hall, Muncie, Ind. Own Forces, $100,000 installing new street traffic lights, MUNCIE, IND. CD 8/5.

† **Abbot Constr. Co.**, 4789 N. Lincoln Ave., Chicago 45, Ill., CA, $403,815. housing facilities, at Special AAA sites C-03-C-41, Cook Co., ENG-11-032-55-72, ILLINOIS. U. S. Eng. 475 Merchandise Mart, Chicago 54, Ill. Bids July 14. CD 6/22.

Leininger Constr. Co., 30 N. La Salle St., Chicago, Ill., LB $475,621 (7 bidders) resurf. South Kedzie Ave. from Marquette to Cermak Sts., CHICAGO, ILL. City, City Hall, Chicago, Ill. CD 12/2/53;

Sam Cerniglia, 3401 Lake St., Melrose Park, Ill., LB $416,530. pumping station and reservoir, MELROSE PARK, ILL. Village, Village Hall, Melrose Park, Ill.

▲ **MICHIGAN** — State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

Lewis & Frisinger, 1110 Harper St., Ann Arbor, Mich. CA $1,242,619. grading, dual 22 ft. wide c. conc. 6.8 mi. M-24 from Walton Blvd. and Opdyke Rd. northerly to approx. 400 ft. south of village of Lake Orion, Oakland Co. CD 7/8, under LB.

BUILDINGS—LB & CA

▲ **Chas. Springmeyer**, 3025 Werk Rd., Cincinnati, O. Owner Builds. $5,000,000. HOUSING DEVELOPMENT, 120 acre tract between Queen City and Harrison Aves., CINCINNATI, O. Chas. Bonfield, 4953 Shirley Pl., Cincinnati, O., engr. CD 9/28.

Paul C. Peters Co., 2318 Monroe St., Toledo, O. CA $435,750. FACTORY and WAREHOUSE, 3-truck loading dock, 126 ft. high, 100,000 gal. water tower, DEFIANCE, O. L-O-F Glass Fibers Co., 1810 Madison St., Toledo, O. Awarded Aug. 11. CD 5/31.

▲ **Jack Kelman**, 935 Leader Bldg., Cleveland 14, O. CA Est. $1,000,000. brick SHOPPING CENTER, incl. 10 or more stores, Abbe Rd. and Cleveland St., ELYRIA, O. Abbe Holding Co., 935 Leader Bldg., Cleveland 14, O. CD 8/17.

Fairview Park Building Co., 2536 Euclid Ave., Cleveland 15, O. CA $500,000. APARTMENT with 32-car garage, 25-car parking lot, 20253 Lorain Rd., FAIRVIEW PARK, O. Fairview Park Apartments, Inc., 2536 Euclid Ave., Cleveland 15, O. Jules Schwartz & Assoc., 2536 Euclid Ave., Cleveland 15, O., engrs.-archts. Awarded Aug. 15.

▲ **Koppers Co., Inc.**, Kopper Bldg., Pittsburgh, Pa. CA 59 CHEMICAL RECOVERY COKE AND OVENS and auxiliary equip. (8th section), LORAIN, O. National Tube Div., (U. S. Steel Co.), E. Mason St. and Gary Rd., Gary, Ind.

▲ **Gilbane Building Co.**, 90 Calverly St., Providence, R. I. CA Total est. $2,000,000. STAMPING PLANT, MANSFIELD, O. General Motors Corp., Fisher Body Div., General Motors Bldg., Detroit, Mich. Awarded July 29. CD 7/1.

H. J. Forepaugh Co., 956 Broadway, Bedford, O. LB $358,527, est. $480,000. HIGH SCHOOL addn., ORANGE, O. Village, Town Hall, 4160 Lander Rd., Orange, O.

Lake Breeze Development Co., c/o A. H. Babcock Co., Fred W. Paige, Sr., pres., 232 Fifth St., Lorain, O. Own Forces. $926,900. 62 HOMES, SHEFFIELD LAKE, O.

George W. Lathrop & Sons Co., 1510 Montcalm St., Toledo, O. CA Est. $400,000. 3 story, 80 x 93 ft., OFFICE, Madison and 16 St., TOLEDO, O. Manhattan Building Co., Bell Bldg., Toledo, O. Bellman, Gillett & Richards, 518 Jefferson St., Toledo, O., archts.

▲ **Crosier House of Studies**, Rev. Leo Sovado, OSC, Seminary Superior, Auburn Rd., Fort Wayne, Ind. Own Forces, $1,000,000. HOUSE of STUDIES NATIONAL HEADQUARTERS for Crosier Order, FORT WAYNE, IND. LeRoy Bradley, 1115 S. Clinton St., Fort Wayne, 2, Ind., archt.

Rolling Meadows, Inc., 440 W. 30 St., Indianapolis, Ind. Owner Builds. $600,000. HOMES, Rolling Meadows, INDIANAPOLIS, IND.

The Tarshes Realty Co., 541 E. 38 St., Indianapolis, Ind. Owner Builds. $500,000. HOMES, Mayfair Addition, INDIANAPOLIS, IND.

United Builders Inc., Marion, Ind. Owner Builds, $600,000. HOMES, MARION, IND.

▲ **Campbell Lowrie & Lautermilch**, 400 W. Madison St., Chicago, Ill., CA, $1,175,000. 120,000 sq. ft. FACTORY, Burr Oak and Central Park Aves., BLUE ISLAND, ILL. G. & W. Electric Specialty Co., 7780 Dank Ave., Chicago, Ill.

L. J. Graf Constr. Co., 6327 Pulaski Rd., Chicago, Ill., CA, $650,000. SCHOOL addn., CONVENT and RECTORY, CHICAGO, ILL. Catholic Bishop of Chicago, 719 N. Wabash Ave., Chicago, Ill. George S. Smith, 2105 E. 71 St., archt. Awarded Aug. 8.

▲ **Ericksen & Blanchard**, Wilmington, Ill., LB $606,000 Wm. Howard Taft School, Mark Twain School and Thomas A. Edison School, KANKAKEE, ILL. School District 111, 240 Warren Ave., Kankakee, Ill. Bids July 27, CD 7/20;
J L. Simmons Co., 506 S. Wabash St., Chicago, Ill., LB, $507,023, West Junior High School addn. and East Junior High School addn. (Kankakee, Ill.)

▲ **Chicago Constr. Co.**, 707 Dundee Rd., Northboro, Ill., Own Forces, $1,600,000. 70 HOMES, NORTHBROOK, ILL. A. J. Del Bianco, 5501 Irving Park Rd., Chicago, Ill., archt.

A. F. Fairbank, 106 N. Fremont St., West Chicago, Ill. CA $680,000. 3 grade SCHOOLS, ST CHARLES, ILL. School Dist. 303, 785 W. Main St., St. Charles, Ill. Bids July 22. CD 7/20.

Collins Builders, 5231 Lincoln Ave., Skokie, Ill., Own Forces, $485,000. 25 HOMES, SKOKIE, ILL.

▲ Wm. E. Schweitzer, 2207 Dodge St., Evanston, Ill., CA, $1,400,000. HIGH SCHOOL, WEST CHICAGO, ILL. School District 94, Joliet Rd., West Chicago, Ill. CD 7/28/54.

▲ Claude Dame, 331 Blackstone Ave., Chicago, Ill., Own Forces, $1,100,000, 50 HOMES, WILLOW SPRINGS, ILL. Nerad & Carlson, 215 Burlington St., Clairendon Hills, Ill., archts.

Camosy Constr. Co., 2120 37 St., Kenosha, Wis., LB $438,888 general contract Forest Park Elementary SCHOOL, KENOSHA, WIS. Bd. Educ., 5515 Sheridan Rd., Kenosha, Wis. Bids Aug. 1.

▲ Wisconsin Farm Bureau Federation, 18 S. Thornton Ave., Madison, Wis., rejected bids July 22, OFFICE, MADISON, WIS. $1,000,000. Will re-advertise. CD 7/20.

▲ Tek Building Co., 533 Southfield St., Lincoln Park, Mich. Owner Builds. $1,100,000. 110 brick HOUSES, Luana St., ALLEN PARK, MICH.

O. W. Burke Co., 1032 Fisher Bldg., Dertoit, Mich. CA Est. $15,000,000. Eastland SHOPPING CENTER, 4 story, 476,000 sq. ft. Hudson Store, 525,000 sq. ft. tenant stores, Eight Mile and Kelly Rds., HARPER WOODS, MICH. J. L. Hudson Co., 1206 Woodward St., Detroit, Mich. Victor D. Gruen, 1903 Industrial Bank Bldg., Detroit, Mic., archt. CD 2/27/52, under Mich., Gratiot.

▲ Hy-Standard Builders, 19469 James Couzens Hy., Detroit 35, Mich. Owner Builds. $3,600,000. Sun Valley West Subdivision 300 brick HOMES, MANKIN, MICH.

Ajack Constr. Co., 2178 S. 95 St., West Allis, Wis., CA $500,000. 1 story, 93x210 ft. CHURCH, WEST ALLIS, WIS. St. Aloysius Church, 1405 S. 92 St., West Allis, Wis. Brust & Brust, 135 W. Wells St., Milwaukee, 3, Wis., archts.

Jezo Constr. Co., 1909 S. 74 St., West Allis 14, Wis., CA $661,972, general contract Wildwood SCHOOL, WEST ALLIS, WIS. Bd. Educ., 7510 W. National Ave., West Allis, Wis. Bids Aug. 1. CD 8/10, under LB.

O. W. Burke Co., 1032 Fisher Bldg., Detroit, Mich. CA $612,000. 1 story, steel, masonry FOUNDRY addn., DETROIT, MICH. Kelsey Hayes Wheel Co., 3600 N. Military St., Detroit 10, Mich.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

September 1 Kansas — September 14 Texas

STREETS AND ROADS

September 1 Kansas — September 13, 14 Texas

KANSAS—BA 9/2—Kansas Turnpike Auth., P. O. Box 681, Topeka,

Sedgwick Co.—b. conc. 9.45 mi., Plans deposit $11, Wilson & Co., 705 E. Crawford St., Salina, sect. engr.

Shawnee Co.—c. conc. 6.75 mi. Plans deposit $13, Servis, Van Doren & Hazard, 2015 Gage Blvd., Topeka, sect. engr. CD 9/30.

▲ Minn., St. Paul—BA 9/6—City, L. E. Kinvig, city purch. agt., 253 City Hall, L. N. Thompson, genl. mgr., water dpt., City Hall, furnish labor and equip. for constr. exten. to water treatment plant. $1,000,000. G. M. Shepard, city engr. CD 11/19.

† COLORADO—BA 9/8—U. S. Forest Service, Fed. Office Bldg., Denver,

Routt Co.—Elk River Bridge, Clark Rd., Routt National Forest.

† Tex., Del Rio—LANDING STRIP, etc.—BA About 9/22—U. S. Eng., P. O. Box 1229, Galveston, A-G Gunnery Range Landing Strip, ENG-41-243-56-8, under $100,000. firing-in-butt and parking apron, ENG-41-243-56-9, $300,000-$500,000; Laughlin Air Force Base. CD 7/2/51.

BUILDINGS—BA

N. D., Garrison—SCHOOL—BA 8/31—Bd. Educ., Garrison, Junior-Senior High School. $425,000. H. M. Leonhard, Bismarck, archt. CD 4/28.

▲ Iowa, Ames—LINDEN HALL—BA 9/2—Iowa State Bd. of Educ., State Office Bldg., Des Moines, Linden Hall at Iowa State College. $1,600,000. Dougher, Rich & Woodburn, 302 Garver Bldg., Des Moines, archts. CD 7/15.

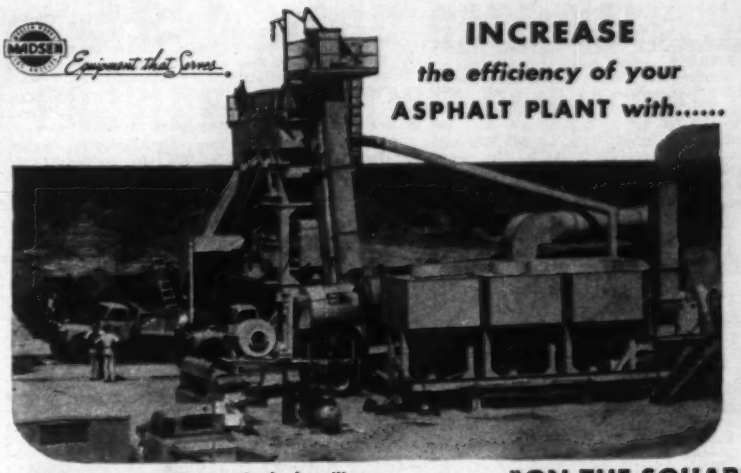
Mo., Versailles—SCHOOL—BA 9/2—Reorganized School Dist. R-2, Morgan Co., Bd. Educ., c/o supt. schools, high school, incl. gymnasium-auditorium, $450,000. Peterson & Scharag, 1103 E. Armour Blvd., Kansas City, Mo., archts. CD 4/17.

Minn., St. Paul—SCHOOL—BA 9/16—Bd. Educ., Mrs. R. H. Okey, clk. W. Bernard and Bellows Sts., 1 story, Mendota Grade School, West St. Paul, $600,000. Plans deposit $15, Ellerbe & Co., E. 505 First National Bank Bldg., archts. CD 3/29.

▲ Tex., Dallas—APARTMENT—Bids Asked—Edward T. Dicker & Jerome Frank, 911 St. Joseph St., 22 story, 102-unit luxury apartment, Turtle Creek Blvd. $5,000,000. Howard R. Meyer, 2907 Maple St., archt. CD 8/10.

HEAVY CONSTRUCTION—LB & CA

† Cunningham-Kiewitt Co., 4229 Lafayette Ave., Omaha, Neb., CA $826,423, constr., repair standard dikes and revetment, Missouri River, Upper Monoma and Lower Monoma Bends, Inv. 25-066-56-14, near Whiting,



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IOWA, U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Aug. 12. CD 8/18, under LB.

† **W. A. Lynn Constr. Co.**, 1022 Trust Bldg., Lincoln, Neb., LB, $798,958, constr., repair standard dikes and revetment, Missouri River, Upper Monona-Lower Monona Bends, near Whiting, Inv. 25-066-56-14, IOWA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Aug. 12. CD 8/5.

Ferguson Constr. Co., Mitchell, S. D. LB $85,338. sanitary sewers and lagoon, HAYTI, S. D. City, Hayti, S. D. Kirkham, Michael & Assoc., 618½ St. Joe St., Rapid City, S. D., engrs. Bids Aug. 15.

KANSAS—Kansas Turnpike Auth., P. O. Box 681, Topeka,

J. A. Tobin Constr. Co., 3701 Rainbow Blvd., Kansas City, Kan. LB $648,675. one structure, welded girder, continuous spans, Wayndotte Co. Bids Aug. 12. CD 8/2.

▲ **KANSAS**—Kansas Turnpike Auth., P. O. Box 681, Topeka,

KTA—**Reno Constr. Co.**, P. O. Box 61, Overland Park, Kan. LB $1,238,547. b. conc. 7.5 mi. Butler Co.; LB $2,518,314. b. conc. 14.9 mi., Butler Co.;

KTA—**J. A. Tobin Constr. Co.**, 3701 Rainbow Blvd., Kansas City, Kan. LB $1,838,138. c. conc. 10.11 mi. Leavenworth and Wyandotte Counties;

KTA—**Amis Constr. Co.**, P. O. Box 1871, Oklahoma City, Okla. LB $945,611. b. conc. 4.89 mi. Butler Co.; LB $866,793. b. conc. 4.45 mi. Butler and Sedgwick Counties;

KTA—**Peter Kiewit Sons' Co.**, Southeast Station, Wichita, Kan. LB $2,210,714. b. conc. 11.08 mi. Sumner Co.;

KTA—**H. D. Youngman Contr., Inc.**, Baxter Springs, Kan. LB $2,302,517. b. conc. 12.95 mi. Sumner and Sedgwick Counties. Bids Aug. 12. CD 7/28 and 8/2.

▲ **KANSAS**—Kansas Turnpike Auth., P. O. Box 681, Topeka,

San Ore Constr. Co., McPherson, Kan. CA $1,812,486. b. conc. 9.1 mi. Lyon Co. Bids July 22, awarded Aug. 9 CD 7/28, under LB.

▲ **KANSAS**—Kansas Turnpike Auth., P. O. Box 681, Topeka,

Tecon Paving Co., 1201 Main St., Dallas, Tex. CA $1,776,921. c. conc. 9.83 mi. Leavenworth Co.; CA $960,621. c. conc. 5.04 mi. Douglas and Leavenworth Counties; CA $1,460,209. c. conc. 6.73 mi. Douglas Co. Grand total $4,197,751. Bids Aug. 5, awarded Aug. 9. CD 8/11, under LB.

Tetyak-Young Constr. Co., 1025 S. Mill St., Kansas City 5, Kan., LB $265,369. Sect. 2 east and west U. S. Hy. 69, sewage treatment plant and trunk line, Indian Creek sub Dist. No. 1, Mission, OLATHE, KAN. Johnson Co., Myron K. Nelson, sewer comr., Olathe, Kan. Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs. Bids Aug. 16. CD 1/31/54;

Brown Bros. Contractors, Inc., 2408 Steele Rd., Kansas City, Kan. LB $251,603. Sect. 1 exten. south from Mission Twp. Main sewer Dist. 1 boundary between Nall and Lamar Aves. (Olathe, Kan.);

Teis Constr. Co., 6617 W. 65 St., Terrace, Oveland Park, Kan. LB $189,444. Sect. 3. east and west of Antioch Rd. (Olathe, Kan.).

▲ **Vaughn & Taylor**, Odessa, Tex. CA $4,708,000, est. $5,000,000. 93 mi. 26 in. gas line and 145 mi. gathering line, OKLAHOMA and KANSAS. Cities Service Gas Co., Bartlesville, Okla. Awarded July 28. CD 4/27, under CA;

J. E. Carlson Constr. Co., Pampa, Tex. CA $753,000, est. $750,000. compressor station for gas pipe line, Alva, Woods Co., Okla. (Oklahoma and Kansas).

▲ **W. Ulrich**, Coeur d'Alene, Idaho. CA Est. $1,000,000. clear 4,000 acres Noxon Rapids, reservoir site, MONTANA. Washington Water Power Co., W825 Trent St., Spokane, Wash., Bids July 25;

Union Constr. Co., Missoula, Mont. CA Est. $1,000,000. clearing, 5,700 acres Noxon Rapids reservoir site and other areas in connection with hydro dam on Clark Fork River, (Montana).

COLORADO—State Hy. Dpt., 518 State Office Bldg., Denver,

Northwestern Eng. Co., 6000 Colorado Blvd., Denver, Colo., CA $257,578, est. $270,000. plant mixed asph. surf. 8.937 mi. Limon and Genoa, Proj. FI 005-6 (3), Lincoln Co. Bids Aug. 11, awarded Aug. 12. CD 8/4.

BUILDINGS—LB & CA

Associated Builders, Inc., Virginia, Minn. CA $500,000. CONCENTRATING PLANT, GILBERT, MINN. W. S. Moore & Co., 400 Torrey Bldg., Duluth, Minn.

▲ **Steenberg Constr. Co.**, 1371 Marshall Ave., St. Paul, Minn. Owner Builds. $2,000,000. 10 story APARTMENT HOTEL, 24 St. and Third Ave. South, MINNEAPOLIS, MINN. L. L. Sauers, 1550 Larpenteur Ave. W., St. Paul, Minn., archt.

Watson Constr. Co., 1040 Baker Bldg., Minneapolis, Minn. CA $800,000. general contract 4-level parking GARAGE with bridges connecting second and third floors to store, 8th and Robert Sts., ST. PAUL, MINN. Golden Rule Department Store, 95 E. Seventh St., St. Paul, Minn. D. Griswold, 80 S. 7th St., Minneapolis, Minn., archt.

▲† **McCarthy Bros. Constr. Co.**, 4903 Delmar Blvd., St. Louis 8, Mo. LB $2,123,850. (7 bidders) 2 story, concrete block 37,900 sq. ft. ADMINISTRATION BLDG., 1 story concrete block 52,800 sq. ft. SERVICE BLDG., 1 story, concrete block 69,000 sq. ft. MAINTENANCE and STORES BLDG., 2,800 sq. ft. PAINT SHOP, WELDON SPRINGS, MO. Fruin -Colnon Contg. Co., and Utah Constr. Co., (Joint Venture), P. O. Box 522, St. Charles, Mo. prime contractor for Atomic Energy Comn., Oak Ridge, Tenn. Bids Aug. 4. CD 6/27.

Parsons Constr. Co., 2512 Deer Park Blvd., Omaha, Neb., CA $500,000. CHEMICAL PLANT, South Omaha Bridge, OMAHA, NEB. Stauffer Chemical Co., Chauncey, N. Y. Fred Kline, c/o owner, engr., temporarily at Logan Hotel, Omaha, Neb. CD 4/27.

▲ **Douglas Constr. Co.**, 510 E. 15 St., Topeka, Kan. Owner Builds. $3,000,000. Hillside HOUSING addn., vicinity of Huntoon and Gage Sts., TOPEKA, KAN.

▲ **Builders Development Corp.**, Littlefield Bldg., Austin, Tex. Owner Builds, $360,000 (A) 9 DWELLINGS; $390,000 (B) 30 DWELLINGS; $400,000 (D) 10 DWELLINGS, AUSTIN, TEX. Grand total $1,150,000. CD 6/17.

▲ **Vernon & James Smith Co.**, 2151 Ft. Worth Ave., Dallas, Tex. Owner Builds, $376,500. 35 DWELLINGS; $355,000. 20 DWELLINGS; $365,150. 25 DWELLINGS, DALLAS, TEX. Grand total $1,096,650. CD 5/13.

▲ **Williams & Dunlap**, 7722 Eastern St., Dallas, Tex., CA, $3,500,000. 2 story, 325-room luxury HOTEL, swimming pool, etc., on Central Expressway, DALLAS, TEX. B. P. Dunlap, H. E. Williams, Jr., W. A. Wilson & Caruth, c/o W. W. Caruth, Jr., Developer, 5803 Greenville St., Dallas, Tex. CD 8/16.

▲ **Customcraft Builders**, 1612 Alabama St., Houston, Tex., CA $1,112,000. SHOPPING CENTER, HOUSTON, TEX. Drs. Bernard Waidhofer & C. Reed, 1612 Alabama St., Houston, Tex. A. Carroll Brodnax & Chas. M. Sawyer, 1615 Blodgertt St., Houston, Tex., archts.

Sterling Hogan, Sr., 7525 South Park St., Houston, Tex., Day Labor, $410,000, 41 DWELLINGS; $381,115, 32 DWELLINGS, HOUSTON, TEX. CD 5/13.

▲ **W. E. Keep, Builder**, 3743 Colquitt St., Houston, Tex., CA $351,000. Unit 1, 13 DWELLINGS; CA $345,000. Unit 2, 18 DWELLINGS; CA $405,000. Unit 3, 15 DWELLINGS, HOUSTON, TEX. Grand total $1,101,000. W. E. Keep, 3743 Colquitt St., Houston, Tex. CD 5/25.

▲ **Woodshire Bldg. Co.**, c/o Tyra & McCrary, Rusk Bldg., Houston, Tex., Owner Builds, $365,900, 27 DWELLINGS; $350,000. 25 DWELLINGS; $419,750, 38 DWELLINGS, HOUSTON, TEX. Grand total $1,135,650. CD 6/10.

Riggs & Majors, 207 S. Rugel St., Mesquite, Tex., Owner Builds, $422,175, 20 DWELLINGS; $385,750, 12 DWELLINGS, MESQUITE, TEX.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

September 14 California

STREETS AND ROADS

September 1 Nevada September 14, 15 California

BUILDINGS—BA

▲ **Calif., Lodi**—SCHOOL—BA 9/8—Lodi Union High School Dist., c/o Superintendent, Lodi, high school, 48-acre site, Pacific Ave. and Sargent Rd. $2,400,000. Plans deposit $25. Falk & Booth, 16 Beale St., San Francisco, archts. CD 12/1.

† **Idaho, Arco**—NUCLEAR REACTOR—BA Late in September—Atomic Energy Comn., Idaho Operations Bldg., Idaho Falls, design and fabricate small nuclear reactor for testing reactor cores, National Testing Station $250,000-$500,000.

HEAVY CONSTRUCTION—LB & CA

† **Utah Constr. Co.**, 100 Bush St., San Francisco, Calif. and **C. H. Leavell Co.**, 1900 Wyoming St., El Paso, Tex., CA, $673,600 military housing, 60-units, Naval Auxiliary Air Station, NOY 87490, Spec. 46549, FALCON, NEV. P. Wks. Office, Twelfth Naval Dist., San Bruno, Calif. Bids June 8. CD 6/14, under LB.

† **J. H. Sellen Constr. Co.**, 228 9 Ave. N., Seattle, Wash., LB, $730,761, est. $603,153 (5 bidders) clearing, road and sidewalk, mess hall, barracks, other buildings for military installation, Young's Lake, Inv. 56-5, WASHINGTON. U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, Wash. Bids Aug. 10. CD 7/18.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles,

Oberg Bros. Constr. Co., 401 W. Florence Ave., Inglewood, Calif., LB, $797,763, bridge, approaches across the Long Beach Freeway, Los Angeles Co. Bids Aug. 11. CD 7/18.

CALIFORNIA—State Div. Hys., Los Angeles,

Vinnell Co., Inc., & Vinnell Constr., 1145 Westminister Ave., Alhambra, Calif., CA $683,568 grading, surf. 0.4 mi., 2 rein.-con. bridges and detours Golden Gate Freeway at Los Feliz Blvd., Los Angeles Co. Bids Aug. 4, awarded Aug. 16. CD 8/11, under LB.

BUILDINGS—LB & CA

▲ **Christiansen Brothers Constr. Co.**, BYU Campus, Provo, Utah, LB $1,791,160. FAMILY LIFE BLDG., Brigham Young University, PROVO, UTAH. Brigham Young University, Provo, Utah. CD 6/8/53.

Fred S. Macomber, 8818 Melrose Ave., Los Angeles, Calif., LB, $440,910, est. $400,000. (3 bidders) SHOP and MAINTENANCE BLDG., BISHOP, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids Aug. 10. CD 7/20.

▲ **Crown Constr. Co.**, 1231 S. La Brea St., Los Angeles, Calif. LB $1,191,920, Earl Warren HIGH SCHOOL, DOWNEY, CALIF. Downey Union High School Dist., Downey, Calif. Bids Aug. 9. CD 8/8, under LB.

McDonald Brothers, 6060 W. Adams Blvd., Los Angeles, Calif., CA, $502,700. 54 frame, stucco DWELLINGS, Hamlin Ave., Nearfield and Galanto Sts., GLENDORA, CALIF. Whissler Development Co., 606 W. Adams Blvd., Los Angeles, Calif.

▲ **Morley Bldg. Co.**, 7700 Sunset Blvd., Los Angeles, Calif., CA, $2,035,800, est. $1,500,000, Narbonne High SCHOOL addns., LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids July 29, awarded Aug. 12. CD 8/25, under LB.

Bd. Educ., 351 S. Hudson Ave., Pasadena, Calif., rejected bids June 21, Benjamin Franklin Elementary SCHOOL, Altadena, PASADENA, CALIF. LB $557,800. Will re-advertise. CD 7/1, under LB.

▲ **Adgate Land Co.**, 7862 S. Western Ave., Los Angeles, Calif., CA, $1,111,200. 130 frame, stucco DWELLINGS, Cadbrook Dr. and Adgate Ave., PUENTE, CALIF. Raybring Land Co., 7862 S. Western St., Los Angeles, Calif.

Beverly Development Co., 8549 Wilshire Blvd., Los Angeles, Calif., Owner Builds, $858,700, 99 frame, stucco DWELLINGS, Glordano and Big Dalton Sts., PUENTE, CALIF. Martin Stern, 450 N. Beverly Dr., Beverly Hills, Calif., archt.

Pacific Coast Builders, 1 S. Park St., San Francisco, Calif., LB, $550,500. (6 bidders) SCHOOL Pedro, Valley, SHARP PARK, CALIF. Laguna Salada Elementary School Dist., P. O. Box 5, Sharp Park, Calif. Mastin, Hurd & Dick, 526 Powell St., San Francisco, Calif., archts. Keller & Gannon, 126 Post St., San Francisco, Calif., engrs. CD 1/20.

CANADA

HEAVY CONSTRUCTION—BA

Ont., Toronto—BA 9/12—Municipality of Metropolitan Toronto, 67 Adelaide St. E., Intake No. 2, comprising about 4,800 lin. ft. 8 ft. diam. pipe, gunite-lined, concrete encased, with steel shell to extend from present distributor head over $200,000. Plans deposit $25. H. G. Acres & Co. Ltd., 2135 Culp St., Niagara Falls, engrs. CD 2/2/50.

BUILDINGS—BA

Ont., Toronto—GALLERY—BA 8/31—Ontario College of Art, Grange Park, 3 story, 70x130 ft., Toronto Art Gallery addn., also 1 story wing, rein.-con $600,000. Govan, Ferguson, Lindsay, Kaminker, Langley & Keenleyside, 10 Prince St., archts. Morrison, Hershfield, Millman & Huggins, 96 Bloor St. W., engrs. CD 3/17.

▲ **Ont., Toronto**—BANK and OFFICE—BA 9/7—Bank of Canada, 10 Toronto St., 8 story and 2 story penthouse, bsmnt., sub-bsmnt., 100x200 ft., rein.-con., structural steel, bank and office, $2,000,000. Marani & Morris, 1250 Bay St., archts.

BUILDINGS—SLC

Ont., Toronto—FACTORY etc.—Scholl Mfg. Co., 112 Adelaide St. E., soon lets contract, 1 story, no bsmnt., 40,000 sq. ft., steel, concrete block, brick factory and offices. $290,000. N. A. Armstrong, 19 Melinda St., archt.

HEAVY CONSTRUCTION—LB & CA

▲ **ONTARIO**—Dpt. Hys. Parliament Bldgs, Toronto,

Pigott Constr. Co. Ltd., 36 James St. S., Hamilton, Ont., CA, $1,943,961 (9 bidders) 26 piers for new Burlington Bridge, Part A, along Queen Elizabeth Way, Burlington Beach. Awarded Aug. 12.

ONTARIO—Dpt. Highways, Parliament Bldgs., Toronto,

Ont.—**Thompson Constr. (Chemong) Ltd.**, 9 Richmond St., Toronto, Ont., LB $203,534 (5 bidders) Contract 55-170, grading, culverts, gran. base 5 mi. of Hy. No. 17 (Trans-Canada Hy.) from Red Rock Corners westerly, Fort William;

Ont.—**Hacquoil's** 228 W. Gore St., Fort Williams, Ont., LB $139,755 (2 bidders) Contract 55-169, hot mix paving 12.88 mi. Hy. 17 (Trans-Canada Hy.) from Sistonen's Corners to Shabaqua;

Ont.—**Brennan Paving Co. Ltd.**, 400 Gage Ave. N., Hamilton, Ont., LB $127,809 (9 bidders) Contract 55-446, resurf. 114 mi. Hy. No. 4 from Blyth to Wingham;

Ont.—**Johnson Bros. Co. Ltd.**,—37 Market St. Brantford, Ont., LB $96,978 (5 bidders) Contract 55-441, resurf. 3.5 mi. Hy. No. 3, east and west of Tillsonburg;

Ont.—**Dinsmore Constr. Ltd.**, Box 246, Windsor, Ont., LB $388,205 (4 bidders), Contract 55-126, gran. base, hot mix paving along 6 mi. of Hy. No. 3 from Iona to Wallacetown. CD 4/27/44.

Canadian Comstrock Co. Ltd., 1638 Carling Ave., Ottawa, Ont., CA, $529,200. electrical distr. system, Army Camp, PETAWAWA, ONT. Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont. CD 12/15, under Public Buildings.

H. J. McFarland Constr. Co. Ltd., Talbot St., Picton, Ont., CA, $413,489. (3 bidders) c. conc. paving Montgomery Rd. at Army Camp, PETAWAWA, ONT. Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont. CD 12/15, under Public Buildings.

McNamara Constr. Co. Ltd., 42 Industrial St., Toronto, Ont., CA, $968,000. dredging and removal of breakwaters, PORT ARTHUR, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids June 29. CD 7/12, under LB.

Schwenger Constr. Ltd., 1255 Beach Rd., Hamilton, Ont., LB $464,678 (7 bidders) storm sewers, incl. 4,400 lin. ft. 18- to 60-in. monolithic concrete tunnel and 3,600 lin. ft. 21- to 54-in. diam. concrete sewer, ST. CATHERINE, ONT. City, City Hall, St. Catherines, Ont. Phillips & Roberts, 2 Lake St., St. Catherines, Ont., engrs. CD 11/9/43.

Swansea Constr. Co. Ltd., 363 Rogers Rd., Toronto, Ont., CA $468,626, grading, paving, constr. storm

sewers in Yonge St. from north city limits to Kings Highway 401, TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Awarded Aug. 10. CD 1/23/53.

Carter Constr. Co. Ltd., 419 Cherry St., Toronto, Ont., CA **$460,000** (13 bidders) 3 span bridge, incl. 100 ft. center span and two 80 ft. spans, 72 ft. wide from curb to curb, steel girders, concrete deck, on Eglinton Ave. East over west branch of Don River, TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids Aug. 8, awarded Aug. 10. CD 7/29;

Dupont Constr. Co. Ltd., 355 Rogers Rd., Toronto, Ont., LB **$197,835** (6 bidders) Rogers Road Bridge east of Weston Rd. over railway tracks. CD 2/1/54, (Toronto, Ont.).

BUILDINGS—LB & CA

Carter Constr. Co., Ltd., 539 Kylemore Ave., Winnipeg, Man., CA **$500,000**, 2 story, 150x250 ft., WAREHOUSE and OFFICE, WINNIPEG, MAN. National Drugs Ltd., McDermot and Lydia Sts., Winnipeg, Man. Green, Blangstein, Russell & Assocs., 222 Osborne St. N., Winnipeg, Man., archts. Awarded Aug. 9.

Finley W. McLachlan Ltd., 195 Fairbank Ave., Toronto, Ont., CA **$500,000**, 18,000 sq. ft. PLANT and 2,000 sq. ft. OFFICE space, CAINSVILLE, ONT. Crompton Parkinson, Canada Ltd., 33 Niagara St., Toronto, Ont. W. S. Atkins & Associates Ltd., 199 Bay St., Toronto, Ont., engrs. Awarded Aug. 11.

Alphonse Gratton, Inc., 1439 St. Matthew St., Montreal, Que., CA **$550,000**, 1 story, 210x460 ft. rein.-con., steel, brick, block BUS GARAGE and SERVICE BLDG., Frontenac St., MONTREAL, QUE. Montreal Transportation Comn., 159 Craig St. W., Montreal, Que. Bids June 28, awarded Aug. 8. CD 7/27, under LB.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

Guatemala—BA 9/10—Guatemalan Govt., Hy. Auth., Guatemala City, Proj. 17, approx. 72 kilometers grading, drainage, select borrow base, vicinity of Malacatancito, Inter-American Hy. Proj. Bid date changed. Plans are available from Highway Authority, Inter-American Hy. Office, Edificio El Cielito, Room 325, 17-32 8th. Ave., Guatemala City, Guatemala. CD 8/3.

Guatemala—BA 9/10—Guatemalan Govt., Hy. Auth., Guatemala City, Proj. 16, approx. 30 kilometers, grading, drainage, select borrow base, Selegua Canyon Area, Inter-American Hy. Proj. Extended date. Plans on listed projects are available from Highway Authority, Inter-American Hy. Office, Edificio El Cielito, Room 325, 17-32 8th Ave., Guatemala City, Guatemala. CD 8/3.

▲ **Nicaragua**—TRANSMISSION LINES—BA After 12/1—Kuljian Corp., engrs., 1200 N. Broad St., Phila. 21, Pa., U.S.A., 110 mi. 68 kv transmission lines, 57 mi. 13.2 kv transmission lines, 6 receiving sub-stations, and distr. system for 15 towns north and south of Managua for Empresa Nacional de Luz & Fuerza, Managua, Nicaragua.

▲ **El Salvador**—Bids Asked—Proveeduria Especificia de Obras Publicas, San Salvador, 205 kms. Littoral Highway, Contracts L-1, 2, 3 and 5, incl. earthwork, drainage, bridges and paving. Plans and specifications available Oct. 3. Plans deposit $125 Salvador Colones. Tippetts-Abbett-McCarthy-Stratton, 62 W. 47 St., New York, N. Y., U.S.A., and Edificio Banco Salvadoreno, San Salvador, engrs.

▲ **Peru**—COPPER MINING PIER, Etc.—Bids Asked—Southern Peru Copper Corp., (American Smelting & Refining Co., Phelps-Dodge, Newmont Mining Corp., Cerro de Pasco Corp.), 120 Broadway, New York, N. Y., pier and post works for copper mining, Toquepala Project. CD 2/25/53, under Peru, Ilo.

BUILDINGS—LB & CA

▲ **Parsons & Whittemore, Inc.**, 250 Park Ave., New York, N. Y. CA **$12,000,000**. NEWSPRINT MILL, TUXTEPEC, MEXICO. Fabricas de Papel Tuxtepec S.A. de C.V., Tuxtepec, Mexico.

AMERICANS ABROAD

HEAVY CONSTRUCTION—BA

† **Bermuda**—CHAPEL, etc.—BA On Or About 9/29—U. S. Eng., 346 Broadway, New York 13, N. Y., U. S. A., chapel, NCO club, airmen's club, Kindley Air Force Base, ENG-30-347-56-4.

▲ Bids will be taken about Nov. 1 on the following project under International competitive bidding of NATO.

FRANCE

Service Specialdes Depats d'Hydrecarbures, Direction des Carburants, French Ministry of Industry and Commerce, 85 Boulevard Montparnasse, Paris, supplying, construction partially burned storage facilities for petroleum products, calling for civil engineering activities, tank construction and installing piping and related equip. at Langres and Chaumont, est. $2,857,000 for civil engineering and tank construction only at Langres; est. $857,000 for civil engineering and tank construction only at Chaumont.

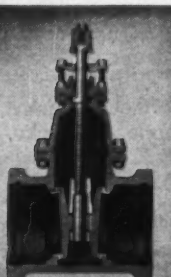
HEAVY CONSTRUCTION—LB & CA

† **J. L. Coe Contr. Co., Inc.**, 506 Builders Bldg., Charlotte 1, N. C., U.S.A. CA, **$349,830**. Globecom facilities, Kindley Air Force Base, IFB ENG-30-347-55-6, BERMUDA. U. S. Eng., 346 Broadway, New York 13, N. Y., U.S.A. Bids July 13. CD 6/17.

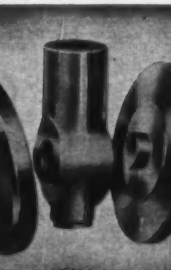
Proposed Advertisements see pp. 82 to 86

R. D. WOOD GATE VALVES PROVIDE POSITIVE FLOW CONTROL AFTER YEARS IN THE LINES

Here's what the R. D. Wood Gate Valve looks like from the outside—rugged, simple, streamlined. It is built for generations of dependable service in the lines. Available with all pipe connections, including mechanical joint.



Strip it down to a sectional view and you can see why interruptions in service are rare. There's virtually nothing to go wrong—none of the complicated small parts that fail in an emergency because sediment and scale render them inoperable.



Bring the R. D. Wood Gate Valve down to its essentials and you have the spreader and two discs. Rising or descending, discs are free to revolve completely, thus distributing wear evenly. In closing, discs are fully lowered before spreading action begins. Fully opened, components move out of the water way, providing full pipe capacity.

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UNIT PRICES

Highway Relocation for Palisades Reservoir, Idaho

Relocation by the Bureau of Reclamation of Wyoming State Highways US 26 and 89 drew seven bidders with a low of $75,932. L. N. McClellan is assistant commissioner and chief engineer, Bureau of Reclamation, Denver, Colo.

The work is in Lincoln County, Wyoming, on the Snake River about 20 miles upstream from Palisades Dam near Alpine, Wyoming.

The only material to be furnished by the Government is the precast reinforced concrete right-of-way markers.

Approved minimum wage rates include: laborers $1.95, pipelayer, nonmetallic $2.10, power shovels 1-yd and over $2.70, and under 1-yd $2.60, scoopmobile and similar machines, under 2-yds $2.25 and scoopmobile over 2-yds $2.55.

Bidders include:

1C	L. H. Weber, Contractor, Rawlins, Wyo.	$75,932
2	Forrest D. Pumnea, Blackfoot, Idaho	80,882
7	Taggart Construction Co., Cody, Wyo.	146,522
EE	Bureau of Reclamation, Denver, Colorado	86,688

Completion 250 calendar days, liq damages $50/day

Bids: 4-14-55 Items	Unit	Quantity	Unit Prices 1C	2
Clearing right-of-way	ac	7.5	$300.00	$125.00
Exc, common, roadway first 71,000 cy	cy	71,000	0.23	0.27
over 71,000 cy	cy	71,000	0.19	0.27
Watering	Mgal	2,280	1.50	1.65
Rolling embankments	rlhr	560	5.00	4.00
Overhaul exc, roadway	mlcy	23,800	0.15	0.17
Exc, all classes, struct	cy	130	2.00	2.00
Compacted backfill	cy	400	5.00	2.50
Gravel fill	cy	4,100	0.37	0.27
Dumped riprap	cy	2,700	3.60	3.75
Dry-rock paving	sy	15	10.00	8.00
Culv P 18"ϕ cl A, f&lay	lf	1,410	4.00	4.00
24"ϕ cl B, f&lay	lf	210	6.00	5.00
Conc headwalls, siphon construct 2	ls	.....	750.00	750.00
Elk fence & gate, rem & construct	lf	350	0.85	0.50
Elk fence, furn & const	lf	5,600	0.85	0.55
single gates, f&i	ea	2	86.00	80.00
barbed-wire	lf	25,000	0.20	0.27
wire mesh	lf	2,350	0.30	0.40
Rem existg wire fence	lf	3,000	0.05	0.10
Set conc ROW mrkrs	ea	44	5.00	3.00

Denver Doubles Moffat Filter Capacity

Of five bids on the Moffat Filter Building Extension and Headhouse Addition, the low, from Mountain States Const Co, took the contract at $619,069. The filter equipment contract went to E. W. Bacharach, Inc. at $583,000. John Burgess is Chief Engineer of the Board of Water Commissioners, Denver, Colo.

Present filtering capacity of the Moffat plant, 56 million gallons, based on 2.8 gallons per square feet per minute will be doubled by this construction. Construction includes filter building 103 ft x 225 ft, 10 filters 1400 square feet each; headhouse addition 44 ft x 39 ft, three floors, two chemical storage and loading dock. Contract also includes 50 ft x 50 ft x 15 ft concrete cistern and 60 ft x 45 ft x 18 ft mixing basin.

Both buildings have to be connected to existing buildings using one wall as a common wall. Roofs of prestressed concrete channel slab construction, bid as an alternate to structural steel framing and precast concrete slab, took the contract.

Wage rates in Denver include: bricklayer $3.50; carpenter $2.85; plasterer, $3.375 including health and welfare $0.075/hr; electrical worker $3.00; building laborer $1.875; structural iron worker $2.925 including $0.075 hr welfare; truck driver, 1½ ton, $2.00; truck driver, 4 cy dump $2.00, over 4 cy dump $2.10.

Bidders include:

Building extension construction

1C	Mountain States Const. Co., Denver, Colo.	$619,069
2	Lippert Bros. Const. Co., Denver, Colo.	672,776
5	Dondlinger & Sons Const. Co., Wichita, Kan.	1,106,250
EE	Bd of Water Comm., Denver, Colo.	1,089,000

Base Bid structural framing & conc slab roof	1	$599,857	
Alternate A prestressed conc channel slab	1C	597,094	
Item 2, labor & material for caissons to support column or wall footings	1C	3,000	
Item 4b, concrete ordered as extraunder footings and slabs	1C	18,975	
Total contract based on Alternate A	1C	619,069	

Analysis of Alternate A Bid 1C $597,094
Completion 395 calendar days, liquidated damages actual extra cost to water dept.

Bids 6-8-55 Items	Unit	Quantity	Unit Price	% of Total
Excavation	cy	15,858	$1.70	4.5
Backfill	cy	4,683	2.50	2.0
Reinforcing steel	t	325	225.00	12.3
Conc poured in place	cy	3,526	54.00	31.9
Conc, precast	ls	ea	28,310	4.7
Mary face brick	M	141	157.00	3.7
common brick	M	215	102.00	3.7
conc block	ea	430	0.60	0.0
glazed tile	ea	13,650	0.60	1.4
misc & demolition	ls	ea	5,712	1.0
Terra cotta	ls	ea	12,101	2.0
Cut stone	cf	700	6,480	1.1
Mortar	cy	148	4,048	0.7
Terrazzo	ls	ea	9,855	1.7
Prestressed roof-slabs, beams & columns	ls	ea	43,179	7.2
Plaster	ls	ea	3,654	0.6
Str stl & orn metal	ls	ea	38,815	6.5
Sheet metal	ls	ea	18,293	3.1
Stl windows & frames	ls	ea	2,375	0.4
Carptry, millwk & monorail	ls	ea	1,941	0.3
Roofing	ls	ea	11,394	1.9
Paint	ls	ea	5,400	0.9
Glass	ls	ea	800	0.1
Hardware	ls	ea	4,985	0.8
Elevator	ls	ea	14,837	2.5
Plumg, drainage, heatg	ls	ea	14,500	2.4
Electrical	ls	ea	15,705	2.6

Filter equipment

1C	E. W. Bacharach, Inc., Kansas City, Mo.	$583,000
2	George A. Bass Const. Co., Birmingham, Mich	635,954
8	Johnson Bros. Heating Co., Chicago, Ill.	715,000

Alternate bids using Wheeler Filler Bottoms

1	Pitt Const. Co., Pittsburgh, Penna.	$621,000
2	Stearns-Roger Mfg. Co., Denver, Colo.	675,309
3	Municipal Service Co., Kansas City, Mo.	680,000

Bids 6-8-55
Completion 160 calendar days, after completion of buildings, liquidated damages actual cost to water dept.

The Cost of Money: It Keeps Getting Higher

Cook County turns down bid of 2.69% for expressway bonds as being too high. This is second turn-down in a month

The rising cost of money has been a major factor in blocking another big bond issue to finance construction. Last week, Cook County, Illinois, rejected a bid by investment bankers for a $40-million block of expressway bonds that would have cost the county 2.69%. Reports are that county officials had hoped for a bid of about 2.50%. Only a month ago, New York State Comptroller Arthur Levitt turned down the best bid for $125 million of New York Thruway Authority bonds, because he thought the interest cost was too high.

The Cook County bonds were the first part of a $245-million issue of general-obligation securities recently authorized by the state legislature to build limited-access highways and bridges. These expressway bonds, however, have no specific backing from the state, unlike Cook County's superhighway bonds, which get 11% of Illinois motor fuel taxes.

• **Bond backing**—Reports are that the state and county figure the expressway bonds can be retired from federal-aid grants for urban highways. The bonds, of course, are also backed by Cook County's property tax. Although the property tax rate has a limit which cannot be exceeded without consent of the voters, the actual rate being levied is far below this point. The expressway bonds were not specifically approved by county voters.

• **Down-graded**—One of the big services that rate bonds is impressed by the possibility that amounts of federal aid to urban highways are subject to possible wide variation, and considers that the county may have to raise its property tax to help retire the bonds. For this reason, Moody's down-graded the county's general-obligation bonds from Aa to just plain A. That means the bonds are rated as "higher medium grade" instead of "high grade." It will cost Cook County more to borrow, because underwriters know that this change in rating will have some effect on bond investors all around the U.S.

• **Construction delay?**—As in the case of the Thruway episode, failure to sell bonds now doesn't mean contract awards and construction will have to be delayed pending improvement in the bond market. The county could borrow temporarily about $20 million from its superhighway sinking fund—a separate financial setup from the expressway bond issue. And presumably it could borrow temporarily by selling bond anticipation notes to banks. However, the bond underwriting syndicate whose bid the county rejected was made up of the biggest banks in Chicago. They might be reluctant to give short-term accommodation to the same borrower who refused their long-term proposition.

• **When will money get cheaper?**—How long will Cook County and the New York Thruway Authority have to wait before the bond market gets easier? Most people around Wall Street feel that both borrowers will have to cool their heels for some time if they expect a lower interest cost. Possibly the solution in Cook County's case would be to get state backing for its bonds.

Wall Streeters say that state officials just haven't adjusted themselves yet to the fact that money rates have risen fairly sharply in the past three months. The majority opinion is that money will continue to get somewhat tighter for several months.

• **The business background**—One reason is that demands for money will be strong this fall. American Telephone & Telegraph Co., for instance, wants to swing the biggest corporate loan in history for $650 million. Other companies will demand huge amounts of short-term and long-term money to finance expanding business. The $400-million Illinois toll road issue may come up then, along with other revenue issues. And, of course, there is a tremendous continuing demand for mortgages. A big backlog of mortgage applications was not affected by the mild restraints recently imposed by FHA and VA.

At the same time, there is increasing demand on the banks for short-term loans to industrial corporations and to finance companies for installment lending to consumers. Though the rise in consumer paper may taper off, the big season for bank loans to business is just beginning. Commercial banks recently boosted their prime rate from 3% to 3¼%. That's the basic rate they charge their blue-ribbon customers, and all other rates scale up from that. It's not impossible that there might be another boost in the prime rate. In any event, the banks will get choosier about who gets this bottom rate.

• **The Washington background**—While demand for money increases, the Federal Reserve Board and the Treasury will continue to tighten money slightly, in order to prevent inflation from getting out of hand. This is a delicate process. The authorities learned in the spring of 1953 what severity can do to disorganize the bond and mortgage market. And this time a fast rise in interest rates could cause ructions in the stock market as well.

But it seems pretty certain that these enormously powerful government institutions will lean cautiously toward tighter money as long as the U.S. economy continues to be this prosperous. That means long-term borrowing for construction and short-term bank loans to contractors will continue to get more expensive. And some marginal construction projects that might otherwise have been financed will have to be postponed.

June Housing Starts Drop to Annual Rate of 1.2 Million

The rate of housing starts dropped in July to 115,000, 11% below the June level, according to last week's announcement by the Bureau of Labor Statistics. This is the first time in over a year that monthly starts have failed to top the same month a year ago.

Nearly all of these starts—114,200—were for private units. Private starts considered by themselves were about 1% above private starts in July last year. This compared with an average increase of 21% over a year ago during the first six months.

• **Annual rate declines**—Private starts for July were down to a seasonally adjusted rate of 1.2 million, compared to a better than 1.3 million annual rate during the first half. This is the first month since last October when the annual rate dropped below 1.3 million. In June, it was 1,320,000.

(B&F continued on page 78)

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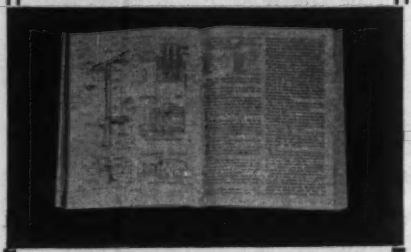

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BUSINESS AND FINANCE

Copper's Scarcity Leads to Third Price Boost This Year

Leading copper producers have boosted the price of copper by four cents a pound to 40 cents. This is the third boost this year from the 30-cent level prevailing in January. Posted prices for copper have not been this high since 1872.

Even at 40 cents per pound, domestic copper sold on contract by leading producers is well below world price for spot copper, quoted on the London Metal Exchange at about 47 cents. Independent U.S. fabricators have also been paying above the new official price to get copper on the open market.

• **Hard to get**—The fact is that copper is scarce, and the latest boost is not likely to make it any easier to find. The recent strike cut production of some U.S. producers just at the time when demand has been rising in the auto, construction, and appliance industries. In Europe, supply is still affected by last winter's strikes in the Rhodesian copper mines.

Supermarket Chain Plans to Own Large Shopping Centers

One of the largest of U.S. supermarket chains has decided to go into the business of developing and operating shopping centers. Food Fair Stores, Inc., of Philadelphia, said last week that it would set up a subsidiary to carry on this operation separately.

The subsidiary, Food Fair Properties, Inc., will start with capital of about $10 million. It will interest itself primarily in "regional" shopping centers, as opposed to small, neighborhood centers. The company will acquire land, develop it, arrange for construction, lease to retailers, and operate the properties.

Obviously, $10 million of capital would not take Food Fair very far with development of large centers. The company will seek to interest long-term investors in taking mortgages on its properties.

To start off, Food Fair Properties will buy, for about $1.2 million, two tracts of land already owned by Food Fair. One is a 48-acre site in Miami and the other is about 45 acres near Reading, Pa.

Business Briefs . . .

• **Thruway revenue soars**—Toll revenue for July on the New York State Thruway, which is still under construction, climbed 50% over the previous record set in June. The rise was from $1,125,000 to $1,689,000. Nearly all of the gain was in passenger-car revenue, presumably due to a truck strike in New England which curtailed hauling in New York as well.

• **Utility financing**—Puget Sound Power & Light Co., Seattle, has arranged a $20-million credit with banks to finance the start of its $79-million construction program during 1955-1959. About $35 million will be spent for a dam on the upper Baker River, $42 million for expansion of distribution and transmission facilities, and $2 million for office and service buildings.

• **Kaiser Gypsum Co.** will build a second gypsum-products plant at Pittsburg, Calif., to replace the Redwood City plant destroyed by fire on June 23. The plant will be next to a larger $5-million gypsum plant due to be finished next summer. Together, the two plants will have annual capacity of 274,000,000 sq. ft. of gypsum board products and 20,000 tons of plaster.

• **Porter acquires Eseco**—H. K. Porter Co., Inc., of Pittsburgh, has acquired Electric Service Engineering Co., of Joliet, Ill., Eseco makes electrical and electronic devices.

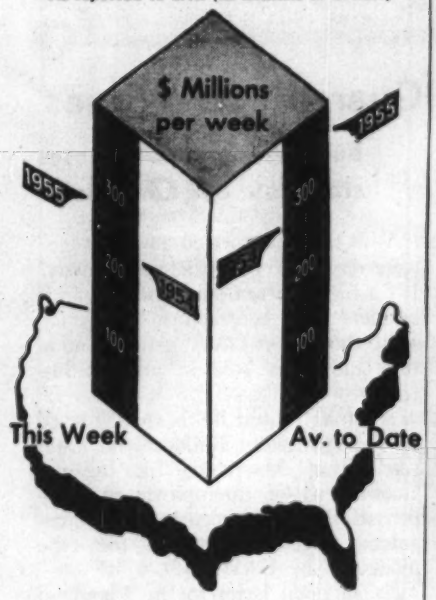
• **July contractor failures** reported by Dun & Bradstreet reached a new high of 102 for the month. Most failures so far this year have been building subcontractors. General building contractors have been doing better than last year. The 42 failures among nonbuilding general contractors this year is a new high.

• **Merger plans**—American Hoist & Derrick Co., of St. Paul, Minn., is planning a merger with American Steel Dredge Co., Inc., of Fort Wayne, Ind. ASD makes excavators and dredges. And American Crucible Products Co., maker of bronze bearings and working parts, has acquired another Lorain (Ohio) firm, Kenco, Inc. Kenco makes sump pumps.

• **AEC turns down private offers**—The Atomic Energy Commission has turned down bids from J. A. Jones Construction Co., of Charlotte, N. C., and from joint venturers Babcock & Wilcox and Lockheed Aircraft Corp. to build a $15-million engineering test reactor. The two bidders offered to build the reactor at their own expense and lease time to AEC. Instead, AEC will build its own reactor at Arco, Idaho, with Kaiser Engineers, Inc., doing design.

Activity This Week

As reported to ENR (In millions of dollars)



Amount of contracts let

(millions of dollars) By Ownership	This Week	Cumulative 34 wks 1955	1954	% chge
Federal	$11.1	$1,166.7	$808.0	+44
State and municipal	80.0	3,507.5	3,184.1	+10
Total public	91.1	4,674.2	3,992.1	+17
Total private	174.2	7,673.7	5,357.5	+43
U. S. Total	$265.3	$12,347.9	$9,349.6	+32

By type of work

Waterworks	$3.2	$177.6	$149.9	+18
Sewerage	8.7	252.8	246.6	+3
Bridges	4.8	311.3	321.5	−3
Highways	41.1	1,427.6	1,194.4	+20
Earthwork, waterways	2.5	338.4	180.4	+88
Buildings:				
Public, excl. hsg.	22.7	1,161.4	1,159.4	+0.2
Public housg.	0.0	183.4	164.5	+16
Private housg.	87.8	4,175.1	2,780.3	+50
Commercial	32.8	1,131.2	849.9	+33
Industrial	43.2	1,838.0	1,277.1	+44
Unclassified	18.5	1,351.1	1,025.6	+32
U. S. Total	$265.3	$12,347.9	$9,349.6	+32

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction

(million of dollars)	Week of Aug. 18	Cumulative 33 Wks 1955	% Chge '54-'55
Corporate securities	$40.5	$2,180.6	+12
State and municipal:			
All except housing	56.9	2,726.0	−22
Housing	0.3	71.1	−22
Federal loans	5.1	88.2	+13
Federal aid	111.0	853.5	+35
Total nonfederal	213.8	5,919.5	−6
Federal appropriations:			
In U. S.	2,886.6	3,402.7	+181
Outside U. S.	37.7	84.6	+198
Total new capital	$3,138.1	$9,406.8	+25

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost	8/18	672.55	323.29	140.99
	7/28†	672.24	323.15	140.92
Building cost	8/18	478.68	258.76	136.07
	7/28†	478.48	258.41	136.01
Volume	July	699	284	202
	June	633	257	183

†Official ENR Indexes for August

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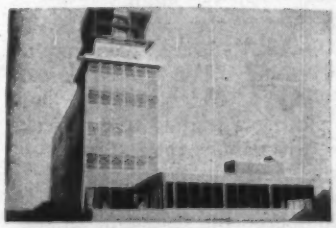

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Cement Strikes End

Western areas were faced with a critical situation

The situation looked brighter for the cement industry last week as new wage agreements brought an end to 44 days of strikes and lockouts in Arizona and California.

In Phoenix, San Diego and San Francisco, more than 1,500 sand, gravel and ready-mix concrete workers had struck when wage negotiations broke down, and millions of dollars worth of construction came to a standstill as cement supplies failed.

• **Arizona**—Hardest hit was Arizona, where sand and gravel workers struck against Arizona Sand and Rock Co., biggest in the state. Nine other Phoenix gravel companies retaliated with lockouts, claiming a strike against one is a strike against all. Soon, 18 plants were idled; residential construction was halted; work on the million-dollar Motorola Transistor Plant and on projects at Luke Air Force Base came to a standstill.

Lumber yards, block plants and cement companies reported financial difficulties. One small sand company which signed an interim agreement said it had to—because it couldn't survive a shutdown.

Major hitch in the negotiations was a union demand that sand and gravel rates be raised to the same level as those prevailing for similar work in construction. Although there was some disagreement as to how much the tentative contract would achieve in this direction, Federal Conciliator W. J. Holloran—who wouldn't disclose the terms—predicted union ratification.

• **California**—A wage dispute that had tied up 30 ready-mix concrete plants on the San Francisco peninsula ended in a two-year contract, granting a 27.5-cent increase in basic rates.

The union—operating engineers—won most of its demands. The score: a 15-cent wage boost retroactive to June 1 with another 12.5 cents next June; two additional paid holidays, bringing the total to eight; $2.00 more a month for health and welfare; jurisdiction over maintenance and repair of their machines.

An AFL spokesman for Local 3 reported that 500 employes had been thrown out of work by the nine-day strike at plants producing 90% of the ready-mix concrete in San Francisco, San Mateo and Santa Clara Counties, but claimed no major construction jobs were halted.

And down in San Diego, most big projects were coming close to a standstill when a truce was reached in a ten-day strike against seven rock and gravel plants.

Terms approved by the unions—operating engineers, teamsters and laborers—were these: termination date of Aug. 15, 1956; a 15-cent across-the-board wage increase; one week of retroactive pay at the new rate. In one case, the union's vote to ratify was described as "too close for comfort."

Ready-mix operators continued deliveries during the shutdown, but indicated the backlog of concrete materials was about exhausted when the settlement came. And AGC general manager M. A. Mathias said in another week most major projects would have been shut down.

Plumbers Play Leading Role In Study of Atomic Energy

Problems faced by organized labor in peacetime development of atomic energy will be covered in a lecture program scheduled to start Sept. 1 at the University of California.

Primary purpose of the series is to help prepare members of Local 159 of the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of the United States and Canada for atomic energy work. The program is being planned by the Institute of Industrial Relations and University Extension in cooperation with the union.

Speaking for the plumbers, William Dimler, business manager of Local 159, said, "The United Association, under president Martin Durkin, is playing a leading role in seeking to clarify labor's interest and role in atomic energy development."

Although of particular interest to the plumbers, the program is expected to benefit organized labor as a whole. It has a "profound and growing interest in atomic energy development," program coordinator John Hutchinson said, and has "a practical interest in the training, safety and health problems involved."

Included in the subjects to be covered are the peacetime developments of atomic energy; construction, maintenance and health problems; and safety and workmen's compensation questions.

Guaranteed Wages

Builders group opposes state law amendments

Will the "guaranteed annual wage" issue reach the construction industry? It's a big question—and one to which builders and contractors are giving some thought as GAW gains momentum and takes hold in other industries.

A strong protest has been registered by the Associated Builders and Contractors of Maryland, Inc. against amendment of unemployment compensation laws to accommodate guaranteed wage contracts of the type pioneered by UAW-CIO.

In an open letter to the Maryland Legislative Council, whose subcommittee met last week to consider amendments to the state law, the association took the position that statutory changes tailored to fit the contracts are "directly contrary to the original philosophy" of the security system. "Our association," it said, "is categorically opposed to setting up a special privileged class of workers who will draw unemployment compensation pay along with special allowances from an employer."

Clarification of the law has been recommended by Robert Kimble, chairman of the Maryland Security Board, to eliminate legal headaches arising under the new contracts. He views the GAW agreements as "a continuing and strengthening of the original Employment Security Act."

But the builders contend the original philosophy of the act was aimed at "taking care of workers in dire need. It is directed at helping those who are out of work because of no fault of their own." The association expressed the fear that GAW contracts will encourage an idle worker not to seek work and to "sit quietly aside and wait until his regular employer calls him to work."

Earlier this summer, members of the Building Industry Employers of New York State were told at their mid-year meeting that the GAW could and would apply eventually to the construction industry. "Fringe benefits granted to the unions during the past several years by employers," one speaker said, "have been a stepping stone for the more important GAW."

In the meantime, the UAW-CIO continues to push its GAW demands in the farm equipment industry; a GAW contract has been negotiated by

AFL sugar workers and California & Hawaiian Sugar Co.; and the United Steelworkers obtained from the American and Continental Can Companies the nation's first major plan for a full year of supplemental employment benefits.

Labor Shortage

Carpenters head the list in British Columbia

For the first time since the end of World War II, a serious shortage of carpenters and other skilled tradesmen in British Columbia is making it tough for contractors to meet construction schedules on major building projects.

Vancouver Local 452 of AFL carpenters—with 2,000 members now working—has applications for skilled workers it can't meet. And a check of leading contractors revealed there is an increasing demand for more within the next month.

Col. F. MacGregor MacIntosh, manager of Construction Industrial Relations, blamed government failure to spread out public works programs for the sudden labor demand.

"We have been appealing to the provincial government together with the Building Trades Council," he said, "but we seem to be just a voice crying in the wilderness.

"There will probably be a rush of labor into the province whether we advise against it or not, and then we'll have unemployment again this fall," he added.

Because of this danger, the union's secretary, Percy Deplissy, is urging out-of-town workers to check before coming to Vancouver.

Major contractors reported the shortage of tradesmen has not yet slowed down construction, but most of them say: "We could use more carpenters."

Smith Bros. and Wilson "could do with more" on the new Post Office Building.

Commonwealth Construction would like to hire "a few now and about 100 later when building on the Crown Zellerbach converting plant at Lulu Island reaches the next stage.

Kennett Construction will want more carpenters for the new General Hospital medical school and X-ray building.

Marwell Construction is "having some difficulty" getting carpenters for its huge new West End apartment block.

And Utah Construction hasn't yet estimated labor requirements for the new $7.5-million Burrard and Georgia office block now under way.

(Labor continued on page 82)

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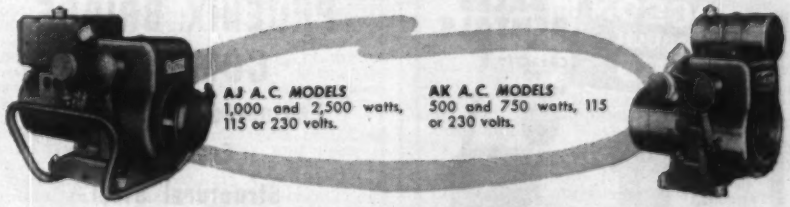

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LABOR

Contractor Sues Owner For Labor Strife Losses

Can a union contractor who loses money on a job because of delays resulting from hiring both union and non-union labor on the same project recover from the owner?

That question is now before the U. S. District Court in Wilmington, Del. It has been raised in a $500,000 suit filed by Anthony P. Miller, Inc., a New Jersey contracting firm, against the Wilmington Housing Authority.

The Miller firm claims that it was engaged as a union firm to construct a number of units at two of the authority's public housing projects. Excavating and grading contracts for the two projects, it maintains, were awarded to a non-union firm. Miller contends that this conflict resulted in a 54-day strike which cost it $300,000 more than the contract price.

A number of other charges relating to contract changes, supervision and delays form the basis for the rest of the damages which Miller seeks.

Secondary Boycott Cases Show Increased Activity

A larger number of illegal secondary boycott charges were filed against unions during the second quarter of this year than in any previous three-month period since the Labor-Management Relations Act was passed.

In its statistical summary for the second quarter of 1955, the NLRB reported that 1,494 unfair labor practice charges were filed—994 against employers and 500 against unions. Of the latter, 139 were based on secondary boycotts and 25 stemmed from jurisdictional disputes.

For most categories, the period was one of accelerated activity. The board handed down 512 decisions; the general counsel issued 126 complaints; collective bargaining elections totaled 1,294; and 21 petitions for injunctions were issued.

At the end of the quarter, 834 cases were pending before the board and 4,103 were in process at various procedural levels. Among these were 2,663 cases of unfair labor practice.

Contractor Wins Appeal In Non-Union Labor Suit

Colorado's Supreme Court has upheld a $26,000 judgment obtained by a highway contractor against three labor organizations.

The suit arose on a state highway construction project carried out in 1948 by the late Henry Shore, Little-

ton, Colo., contractor. He brought suit against the three unions after they established picket lines on the project where Shore was using union and non-union labor.

Suing on charges of unfair labor practices, Shore complained he was forced to discriminate against non-union labor. A district court permanent injunction halted the picketing.

Judgment was against the Denver Building and Construction Trades Council, Local 9 of the International Union of Operating Engineers and Local 24 of the International Association of Bridge, Structural and Ornamental Iron Workers.

Building Trades Object To Use of Mexican Rock

Informal discussions between contractors interested in bidding on the $10-million Tenth Avenue Marine Terminal in San Diego, Calif., and the San Diego Harbor Department have run into an international snag.

Contractors would like to use rock from the Mexican-owned Coronado Islands, lying about 20 miles southwest of San Diego, because they could float it to the site by barge.

According to city attorney Jean DuPaul, if the contractors get the rock in Mexico, they'll be up against a Mexican law requiring that Mexicans be employed on projects in Mexico at the ratio of five Mexicans to one foreigner.

Meanwhile the president of the San Diego AFL Building Trades Council has written identical letters to the city council and harbor commission with this ultimatum: "We will not place one piece of (Mexican) rock or work on the project if anyone else does. And if our men don't build the pier, I don't know who will."

Purchase of the rock on delivery at San Diego, says the city attorney, would not violate the city ordinance governing use of alien labor. But the building trades contend use of Mexican quarried rock would constitute unfair competition with U. S. labor.

Wage Boost Briefs . . .

• **Roofers**—Roofing contractors in California's Santa Clara and San Benito Counties signed a two-year contract granting roofers a 12.5-cent boost now and the same amount again next August. They'll also get 5 cents an hour for vacation pay.

• **Electricians**—A new one-year contract with the Milwaukee chapter of the Electrical Contractors Assn. gives 1,500 construction electricians a 5-cent wage increase (making the rate $3.05) plus 7 cents for vacation pay.

OFFICIAL PROPOSALS

Bids: September 15, 1955

Delaware River Port Authority Administration Building Camden, New Jersey

WALT WHITMAN BRIDGE—
GLOUCESTER APPROACHES
BRIDGES OVER CRESCENT BOULEVARD AND BLACK HORSE PIKE
CONTRACT NO. G-5

Sealed bids will be received for BRIDGES OVER CRESCENT BOULEVARD AND BLACK HORSE PIKE, for new bridge between Packer Avenue, Philadelphia, Pennsylvania, and Gloucester, New Jersey, known as Contract No. G-5, at the office of the Executive Director of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey until 2:30 P.M. (Eastern Daylight Time), September 15, 1955, at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $50,000 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania, or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of 100 per cent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO,
Executive Director

Bids: September 15, 1955

Pennsylvania Turnpike Commission Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 a.m. Eastern Daylight Saving Time, the 15th day of September 1955, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room #1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud for the following contract:

For the construction of Offices and Barracks at Everett, Pennsylvania:

Contract No.	Offices and Barracks	Station	County
173	Everett	1808+32	Bedford

The work to be performed under this contract consists of the construction of the Offices and Barracks at Everett, Pennsylvania, at location on the Turnpike listed above, not including however, the plumbing, heating system, the electrical work, the paving or the seeding and sodding, except as noted in the specifications or as shown on the Contract Drawings.

Copies of plans, specifications and Contract Documents are on file and open to public inspection on 26 August 1955 at the offices of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania and Everett, Pennsylvania. Plans, specifications and other contract documents will not be available before this date for inspection or for mailing to prospective bidders.

Plans and contract documents may be obtained from the Commission upon deposit of ten ($10.00) dollars for each set. No refund will be made for plans returned, unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P. O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications and contract documents.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE
COMMISSION
James F. Torrance
Secretary and Treasure

Harrisburg, Pennsylvania
16 August 1955

OFFICIAL PROPOSALS

Bids: Sept 1, 1955

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLJC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Daylight Saving Time, on September 1, 1955 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATION AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE WANTAGH-OYSTER BAY EXPRESSWAY, NASSAU COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-78

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.
(b) Mr. M. E. Goul, District Engineer, 325 West Main Street, Babylon, Long Island, N. Y.
(c) Mr. Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a est of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's Estimate of cost for this work is $22,400.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Propsal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,120.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

J. W. JOHNSON
Superintendent of Public Works

Bids: September 19, 1955

Construction of the Nacimiento Dam Project

Sealed proposals will be received at the office of the County Clerk, Court House, Salinas, California, until 11:00 A.M., September 19, 1955 for furnishing all labor and materials for earthwork and structures to construct the Nacimiento Dam Project.

Description of Work: Construction of a zone type rolled earth embankment, approximately 1500 feet long at the crest and 260 feet maximum height above bedrock.

Location: 9 miles southwest of Bradley, California, on the Nacimiento River.

Principal items are: Pervious shell embankment, 2,595,000 cubic yards; impervious core embankment 625,000 cubic yards, 4,000 acres of reservoir clearing; common excavation 455,000 cubic yards, and concrete 11,000 cubic yards.

Completion Date: January 31, 1957.

Plans and specifications may be obtained for a deposit of $25, at the office of the Road Commissioner, P. O. Box 419, Court House, Salinas, California.

(Continued on the following page)

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, 330 West 42nd Street, New York 36, N. Y.

(Continued from preceding page)

Bids: September 14, 1955

Indiana Toll Road Commission 309 W. Washington Street Old Trails Building Indianapolis, Indiana

NOTICE TO BIDDERS
CONTRACT No. C-7

Sealed proposals will be received by the Indiana Toll Road Commission at or before 10:00 A.M., Central Standard Time, September 14, 1955, for the performance of the contract enumerated above.

The grading, drainage, structures and paving of approximately 2.12 miles in Construction Section C-7 of the Indiana East-West Toll Road beginning at a point a distance of approximately 3,343 feet westwardly from the centerline of Cline Avenue in the City of Hammond at Toll Road Station 675+00 and extending eastwardly a distance of about 11,200 feet to a point at Toll Road Station 787+00, said point being westwardly a distance of about 1,184 feet from the centerline of Durbin Street in the City of Gary, all in Lake County, Indiana.

This project also includes the construction of bridges and embankments for the relocation of the Chicago South Shore and South Bend Railroad, located as follows: Beginning at a point on the centerline of said railroad at Station 3395+82, said point being about 2,643 feet westwardly from the centerline of Cline Avenue, in the City of Hammond, thence in an easterly direction a distance of about 5,212 feet to a point on the centerline of said railroad at about Station 3343+70, said point being westwardly a distance of about 58 feet from the centerline of the E. J. & E. Railroad right of way in the City of Gary, Indiana.

The approximate quantities of the major items of construction are as follows:

Common Excavation	18,800 Cubic Yards
Peat Excavation	228,500 Cubic Yards
Borrow	995,500 Cubic Yards
Special Fill for Peat Deposits	263,000 Cubic Yards
10" Reinforced Concrete Pavement	63,000 Square Yards
Hot Asphaltic Concrete Surface Course	1,080 Tons
Culvert Pipes and Underdrains	9,000 Lineal Feet
Concrete for Structures	12,050 Cubic Yards
Reinforcing Steel	1,840,000 Pounds
Fabricated Structural Steel	4,129,000 Pounds
Steel Piling	10,000 Lineal Feet
Metal Handrail	4,400 Lineal Feet

Copies of the Plans, Specifications and Proposal forms for said Contract are available for public inspection or purchase at the office of the Chief Engineer, Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. These document may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

NOTICE TO BIDDERS

Standard Specifications for the Indiana East-West Toll Road	$ 5.00
Plans, Special Provisions and Proposal Forms, per set, per Construction Section	$25.00
Informational Drawings	
Cross Sections, per set, per Construction Section	$25.00
Soil Plan and Profiles, per set, per Construction Section	$ 5.00

All Proposals must be on the forme prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Contractor's statement for qualification on the forms supplied by the Commission will be required from all Bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5%) per cent of the total price bid for the Contract. The Proposal Guaranty shall be in the form of an acceptable surety bond or a certified check on a solvent bank.

If the Bidder is an out of state corporation, he shall be required to furnish a certificate from the Secretary of State of Indiana as evidence that the corporation has complied with the Indiana Foreign Corporation Statutes, and that the corporation is authorized to transact business in the State of Indiana.

All bids must be received at or before 10:00 A.M., Central Standard Time, September 14, 1955, in the offices of the Indiana Toll Road Commission, 309 W. Washington Steet, Indianapolis, Indiana. At said hour, the bid box will be publicly opened and the bids read.

The award of the above Contract, if any award be made, will be to the Bidder or Bidders whose Proposal is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

INDIANA TOLL ROAD COMMISSION
Dr. Dillon Geiger
Chairman

Charles W. Keating
Secretary-Treasurer

Bids: September 8, 1955

The Port of New York Authority

SEVEN (7) GASOLINE ENGINE DRIVEN TRACTORS WITH EIGHT FOOT REVERSING SNOW PLOWS

Sealed proposals for furnishing seven (7) gasoline engine driven tractors with eight foot power reversing snow plows will be received at the office of the Department of Purchase and Administrative Services of The Port of New York Authority, Room 900, 111 Eighth Ave., New York 11, until 11:00 A.M. Thursday, September 8, 1955, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained at the office of the Department of Purchase and Administrative Services, Room 900, and copies will be furnished upon request.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, August 25, 1955

Bids: October 4, 1955

Board of Education Mamaroneck Union Free School District No. 1 Town of Mamaroneck, New York

Sealed proposals will be received until October 4, 1955 at 8:00 P.M. (Eastern Daylight Saving Time) at the Business Office, Mamaroneck Avenue School, Mamaroneck, N. Y. for furnishing labor and materials for the Alterations in and the Addition to the Senior High School.

Plans and contract documents may be obtained from the Architects, McCoy and Blair, 4 Chatsworth Ave., Larchmont, N. Y., upon payment of a deposit as follows:

I—General Construction	$75.00
II—Heating and Ventilating	50.00
III—Plumbing and Gas Fitting	50.00
IV—Electrical Work	50.00
V—Site Development	25.00

By Order of
The Board of Education
Union Free School District No. 1
Town of Mamaroneck, N. Y.
J. J. Barbieri, Clerk

Bids: September 15, 1955

Delaware River Port Authority Administration Building Camden, New Jersey

WALT WHITMAN BRIDGE—PHILADELPHIA APPROACHES ROADWAY GRADING AND DRAINAGE, 28TH STREET AND VARE AVENUE TO MOYAMENSING AVENUE, AND SEPARATION STRUCTURES AND CITY STREET CHANGES AT MOYAMENSING AND PASSYUNK AVENUES
CONTRACT NO. P-7

Sealed bids will be received for ROADWAY GRADING AND DRAINAGE, 28TH STREET AND VARE AVENUE TO MOYAMENSING AVENUE, AND SEPARATION STRUCTURES AND CITY STREET CHANGES AT MOYAMENSING AND PASSYUNK AVENUES, for new bridge between Packer Avenue, Philadelphia, Pennsylvania, and Gloucester, New Jersey, known as Contract No. P-7, at the office of the Executive Director of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey until 2:30 P.M., (Daylight Saving Time), September 15, 1955, at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $200,000 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania, or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of 100 per cent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO,
Executive Director

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4501) will be received at Superior, Nebraska, until October 6, 1955, for furnishing labor and materials for earthwork and structures, Courtland Canal-Station 2003+90.2 to Station 2472+48, including Wasteway, Laterals and Drains, Bostwick Division, Nebraska-Kansas, Missouri River Basin Project. Location near Lovewell, Kansas in Jewell and Republic Counties. Principal items are excavation 1,111,000 cu. yds.; compacting embankments 572,000 cu. yds; concrete in structures 5,400 cu. yds; furnishing and placing reinforcement bars 625,000 pounds; and other work. The work is divided into 3 schedules. Completion time 540 days. For particulars, address Bureau of Reclamation, P. O. Box 150, Superior, Nebraska; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: September 15, 1955

Pennsylvania Turnpike Commission
Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 a.m. Eastern Daylight Saving Time, the 15th day of September 1955, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room #1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud for the following contract:

For the Construction of Heating System for the Offices and Barracks at Everett, Pennsylvania:

Contract No.	Offices and Barracks	Station	County
173-B	Everett	1808+32	Bedford

The work to be performed under this contract is generally in and around the Offices and Barracks at Everett, Pennsylvania. The work does not include the Electrical System, the Plumbing System nor building construction except as noted in the specifications or as shown on the Contract Drawings.

Copies of plans, specifications and Contract Documents are on file and open to public inspection on 26 August 1955 at the offices of the Pennsylvania Turnpike Commission in Harrisburg,, Pennsylvania and Everett, Pennsylvania. Plans, specifications and other contract documents will not be available before this date for inspection or for mailing to prospective bidders.

Plans and contract documents may be obtained from the Commission upon deposit of ten ($10.00) dollars per each set. No refund will be made for plans returned, unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P. O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications and contract documents.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
16 August 1955

Bids: September 15, 1955

Pennsylvania Turnpike Commission
Harrisburg, Pennsylvania

NOTICE TO BIDDERS

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For the construction of Electrical System for the Offices and Barracks at Everett, Pennsylvania:

Contract No.	Offices and Barracks	Station	County
173-C	Everett	1808+32	Bedford

The work to be performed under this contract is generally in and around the Offices and Barracks at Everett, Pennsylvania. The work does not include the Plumbing System, the Heating System nor building construction except as noted in the specifications or as shown on the Contract Drawings.

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For the Construction of Plumbing System for the Offices and Barracks at Everett, Pennsylvania:

Contract No.	Offices and Barracks	Station	County
173-A	Everett	1808+32	Bedford

The work to be performed under this contract is generally in and around the Offices and Barracks at Everett, Pennsylvania. The work does not include the Electrical System, the Heating System nor building construction except as noted in the specifications or as shown on the Contract Drawings.

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The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
16 August 1955

Bids: October 11, 1955

Wesley E. Seale Dam Project
Near Corpus Christi, Texas

NOTICE TO BIDDERS

Sealed bids, in duplicate, will be received by the Lower Nueces River Water Supply District, at 211 Weber Building, Corpus Christi, Texas, until 1:30 P.M., C.S.T., Tuesday, October 11, 1955, and all bids will be publicly opened and read at 2:00 P.M., on that date, at the Corpus Christi Chamber of Commerce Office, 1201 N. Shoreline Drive, Corpus Christi, Texas, for constructing the

WESLEY E. SEALE DAM PROJECT ON THE NUECES RIVER, FIVE MILES SOUTH OF MATHIS, TEXAS.

The project consists of two Ambursen type reinforced concrete slab-and-buttress spillways 60 feet high, approximately 1346 feet and 1560 feet long, respectively; three sections of rolled fill dam approximately 2200 feet, 500 feet, and 400 feet long, respectively; an outlet structure and appurtenant works; and a field office building. The following approximate quantities are required for the principal items:

Stripping	75,000 cu. yds.
Core Trench Excavation	46,000 cu. yds.
General Excavation	146,000 cu. yds.
Trenching, and Finishing Excavation	30,000 cu. yds.
Backfill	14,000 cu. yds.
Embankments, Rolled Fill	787,000 cu. yds.
Embankments, Unclassified	110,000 cu. yds.
Topsoil	4,000 cu. yds.
Reinforced Concrete in Foundation Floors, Mats, and Paving	40,000 cu. yds.
Reinforced Concrete in Buttresses, Piers, Deck Slabs, Abutments and Structures	47,000 cu. yds.
Gravel Fill	31,000 cu. yds.
Riprap	26,000 cu. yds.
Rockfill	2,000 cu. yds.
Road Surfacing	12,000 sq. yds.
Steel Sheet Piling	5,650 tons
Reinforcing Steel	5,910 tons
Automatic Steel Crest Gates 9′ x 37′	60 gates
Intake Tower, Complete with Valve & Sluice Gates	1 complete
Field Office Building 26′ x 50′ x 8′	1 complete

The plans, specifications, and bidding documents may be secured from the office of the general Manager, Lower Nueces River Water Supply District, 211 Weber Building, Corpus Christi, Texas; or from Reagan & McCaughan, 320 Wilson Building, Corpus Christi, Texas; or from Ambursen Engineering Corporation, 295 Madison Avenue, New York 17, or 603 Rosalie Avenue, Houston 6, Texas. A deposit of $100.00 is required for each set of plans and specifications. Upon return of plans and specifications in good condition within fifteen days after date of bidding to the Lower Nueces River Water Supply District, 211 Weber Building, Corpus Christi, Texas, the full deposit will be refunded to bona fide bidders and 50% to non bidders.

Bids must be made on the standard proposal form, in duplicate, and must be accompanied by a bid security in a total amount not less than 5% of the total maximum bid price. Of this bid security, it is mandatory under the Texas laws governing the District that a sum equalling not less than 1% of the total amount of the bid must be in the form of a certified check payable to the order of the Lower Nueces River Water Supply District. The remainder of the security may be in the form of a certified check or, at the option of the bidder, a bidder's bond. The District reserves the right to reject any and all bids, or to accept any bid deemed advantageous to it.

No bidder may withdraw his bid within 45 days after the opening thereof.

The successful bidder will be required to be bonded to the District in a sum equal to 100% of the amount of his proposal.

The bidder is hereby notified that the specifications contain the general prevailing wage scale and the Contractor shall not pay less than the wage rates so shown.

Dated this 2nd day of August 1955.

LOWER NUECES RIVER WATER SUPPLY DISTRICT
GUY I. WARREN
President
CHARLES GALLAND
Secretary

OFFICIAL PROPOSALS

Bids: October 3, 1955

Construction of a Sewerage Treatment Plant

ADVERTISEMENT

Notice is hereby given that sealed bids will be received for Section G in accordance with the law by the Puerto Rico Aqueduct and Sewer Authority until 3:00 o'clock P.M. on the third day of October, 1955, at the office of the Authority in Santurce, Puerto Rico, and will then be publicly opened and read.

The work comprises furnishing materials and performing the labor for the construction of the Puerto Nuevo Sewage Treatment Plant, a primary sewage treatment plant with an initial capacity of twenty-four (24) million gallons per day including influent sewer, influent junction chamber, screening chamber, main sewage pumping station, grit chamber, settling tanks, effluent chamber, outfall sewer, sludge pumping station, sludge digestion tanks and digester control building, non-potable water supply system, administration building, garage and shop, outside connecting piping, roadways and paths, grading, miscellaneous structures and appurtenances and the installation of screening, grit handling, settling tank, chlorinating and pumping equipment furnished by others.

Copies of the plans and specifications may be examined without charge at the office of the Puerto Rico Aqueduct and Sewer Authority, Santurce, Puerto Rico, or at the office of Buck, Seifert and Jost, Consulting Engineers, 223 Manuel V. Domenech Street, Hato Rey, Puerto Rico and 112 East 19th Street, New York 3, New York. Copies thereof may be obtained at the office of the Treasurer of the Puerto Rico Aqueduct and Sewer Authority, Stop 26-½, Fernandez Juncos Avenue, Santurce, Puerto Rico or at the office of Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, New York, upon deposit of cash or certified check payable to the Puerto Rico Aqueduct and Sewer Authority in the amount of One Hundred and Fifty ($150.00) Dollars, which sum will be refunded upon return of the plans and specifications in good condition within twenty (20) days after the date on which bids are received or else the entire deposit will be forfeited.

Bids will be received only from persons who have requested the plans and specifications and made the required deposit therefore under their own names. These documents cannot be obtained later than September 16, 1955.

Each proposal must be accompanied by a certified check or bid bond from a reliable surety company authorized to do business in Puerto Rico and satisfactory to the Authority in amount equal to five (5%) percent of the proposal. The certified checks will be retained to pay for any damage or loss to the Authority or the liability bond will accrue in case the successful bidder shall neglect or refuse to enter into a contract in accordance with his proposal.

The Authority reserves the right to consider bids for thirty (30) days after their receipt before awarding any contract and the right is reserved to waive any informalities, to accept any bid or to reject any or all of them.

PUERTO RICO AQUEDUCT AND SEWER AUTHORITY
by RAFAEL V. URRUTIA
Executive Director
BUCK, SEIFERT AND JOST
Consulting Engineers

Bids: September 20, 1955

Dearborn-Melvindale Disposal Authority, Dearborn, Michigan

NOTICE TO CONTRACTORS

Sealed bids for the design and construction of a Refuse Incinerator in Dearborn, Mich., will be received at the office of the Chairman of the Authority, Second Floor, Department of Law, Dearborn City Hall, Dearborn, Mich., until 2 p. m. Eastern Standard Time, on September 20, 1955.

Project involves design and construction of a 700-ton per day Refuse Incinerator.

Contract documents may be examined and obtained at above office and office of Metcalf & Eddy, Engineers, 1300 Statler Bldg., Boston, Mass., weekdays except Saturdays and holidays; $100 deposit.

Bid security $75,000 cashier's or certified check; 100% performance and lien bonds required.

BOARD OF TRUSTEES
DEARBORN-MELVINDALE
DISPOSAL AUTHORITY
By Dale H. Fillmore, Chairman

OFFICIAL PROPOSALS

Bids: September 13, 1955

Power Authority of the State of New York
St. Lawrence Power Project

ADVERTISEMENT FOR PROPOSALS
FOR
THE CONSTRUCTION OF
LONG SAULT CANAL CONSTRUCTION
POWER
SPECIFICATIONS NO. PA-5-14041
ST. LAWRENCE CONTRACT NO. 21

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of Long Sault Canal construction power near Massena, St. Lawrence County, New York, in the following ways:

(1) If brought in person on the day of receiving bids, until 10:30 A. M. Eastern Daylight Saving Time on the 13th day of September 1955, 270 Broadway, Hearing Room C, on the 6th Floor, New York, New York.

(2) If mailed in, until 10:15 A. M. Eastern Daylight Saving Time on the 13th day of September 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposals will be publicly opened and read aloud at the time and at the address given in (1) above.

The work includes the construction of approximately one mile of single circuit and 4½ miles of double circuit, 13.8 kv, wood pole transmission line. Completion of the work will be required on or before December 15, 1955.

Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York 7, New York upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid. Each proposal must be accompanied by a draft or certified check payable to the order of the Power Authority of the State of New York for sum of $7500.00. Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents.

The right is reserved to reject any or all bids.

W. S. Chapin
GENERAL MANAGER

8/12/55

Bids: September 15, 1955

Pumping and Ejector Stations

City of Tampa, Florida

Sealed proposals for construction of 5 Pumping and Ejector Stations, will be received at the regular meeting place of the Board of Representatives, City Hall, Tampa, Florida, until 2 P.M., E.S.T., September 15, 1955, there to be publicly opened and read aloud.

The work comprises construction of the following:

Div. XG17—Dale Mabry Ejector Station with 150 GPM capacity pneumatic sewage ejector
Div. XG21—Bayshore Pumping Station with two 2,700 GPM and two 1,000 GPM capacity vertical sewage pumps
Div. XG23—Knights Avenue pumping Station with two 280 GPM capacity vertical sewage pumps
Div. XG26—Swann Avenue Pumping Station with three 800 GPM capacity vertical sewage pumps
Div. XG28—Neptune Way Ejector Station with one 250 GPM capacity pneumatic sewage ejector.

Plans and Contract Documents may be examined and obtained from the offices of the Bureau of Sanitary Sewers, 6th Floor, City Hall, Tampa, Florida, and from the offices of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. A deposit of $25.00 is required for each set of contract documents covering the five divisions.

City of Tampa, Florida
By Curtis Hixon, Mayor

Dated August 17, 1955

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4498) will be received at Ephrata, Washington, until October 4, 1955, for furnishing labor and materials for earthwork, concrete lateral lining, and structures, West Part Block 89, Laterals, Wasteways, and Drains, West Canal Laterals, Columbia Basin Project, Washington. Location near Ephrata, Washington. Principal items are 212,000 cu. yds. excavation; 4,200 cu. yds. concrete in lining; 510 cu. yds. concrete in structures; 7 units furnishing and installing outdoor-type pumping units and accessories; 4,000 lin. ft. concrete pipe; and other work. Completion time 350 days. For particulars, address Bureau of Reclamation, P. O. Box 368, Ephrata, Washington; or Building 53, Denver Federal Center, Denver, 2, Colorado. W. A. Dexheimer, Commissioner.

SEARCHLIGHT SECTION

This index is published as a convenience to the reader. Every care is taken to make it accurate but SEARCHLIGHT SECTION assumes no responsibility for errors or omissions.

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Send NEW ADS to ENGINEERING NEWS RECORD, 330 W. 42nd St., N. Y. 36, N. Y. for September 8th issue closing August 26th

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Construction Foreman for firm engaged in extensive sewer, water main and treatment plant facilities. Permanent position in N. Y. State area. Only qualified applicants with broad experience. P-6595, Engineering News-Record.

Wanted: Instructor in engineering drawing and descriptive geometry. Salary $3600 for 9 month period. Dept. of Engr. Drawing, University of North Dakota, Grand Forks, North Dakota.

Master Mechanic Wanted must be experienced in heavy construction equipment of all types. Good opportunity with established contractor, in Southwestern Pennsylvania. Send complete resume, with name, address and salary requirements. P-7313, Engineering News-Record.

Wanted—Experienced sand and gravel man. Must be able to set up plant and produce sand and screened and crushed gravel from river deposit. Work in Northwest. Give full particulars. P-7310, Engineering News-Record.

Engineers—Experienced in design and preparation of plans for water works and sewerage systems and structural design. Advise education, experience, salary requirements and when available. Location Eastern New York. Reply P-7171, Engineering News-Record.

Architect—Qualified through training and experience to design churches, schools and other buildings. Give full information as to education, experience, salary requirements and when available. Location Eastern New York. P-7172, Engineering News-Record.

Construction Engineer for general contractor doing engineering type construction. We want a man that has growth possibilities and wants to get ahead. P-7295, Engineering News-Record.

Construction Superintendent—General Contracting firm operating in West Virginia, Maryland and Pennsylvania, specializing in the construction of commercial and public buildings, desires man for project superintendent. Engineering background preferred. Must have references to demonstrate that he has administrative ability and can handle all phases of work required by the project. Reply giving age, resume of experience and salary required. P-7292, Engineering News-Record.

Cost Analyst for engineering dept. planning group. Graduate Engineer—construction cost & engineering background. Analytical min, personality, initiative, are important. Location: Southwest Ohio. P-7229, Engineering News-Record.

Civil Engineer—qualified to design and to prepare specifications and cost estimate for earth dams and appurtenances. Location, Ohio. P-7230, Engineering News-Record.

Sales Manager for manufacturer of concrete form accessories. Must be experienced in construction practices, read prints. Qualified to organize and supervise sales for national coverage. Give full details including salary expected in first letter. Opportunity of lifetime for right man. P-7236, Engineering News-Record.

Engineer qualified to teach structural design. Full or part-time. Rank and salary open. C. E. Dept., Manhattan College, N. Y. 71, N. Y.

POSITIONS VACANT

Estimator for building construction firm with main office in Boston. Must have engineering background and experience in this type of work. Permanent position for qualified applicant. Salary open. Write Beacon Construction Company, 102 Hano Street, Allston 34, Massachusetts.

Administrative Assistant to Chief construction engineer for a large consulting engineering firm located in New York City. Must have had experience as resident engineer on highway survey, construction, bridges, etc. Applicants requested to furnish resume of education and experience. All applications will be held confidential. Salary open. P-7399, Engineering News-Record.

Heavy construction superintendent must be familiar with cofferdams, piling, and concrete work. 1-10 million dollar class. Attractive salary and permanent position for the right man. P-7413, Engineering News-Record.

Engineering Draftsman-Clerk wanted for general public works engineering and administration. Submit complete resume. Public works manager, Middletown, Pennsylvania.

Estimator; Experienced in taking-off quantities for public buildings, industrial and commercial construction. Permanent position with General Contractor located in Ohio. Write, fully stating experience, education and salary expected. All replies confidential. P-7483, Engineering News-Record.

Gunite-Sandblasting Contractor, well rated, due to illness desires responsible associate; will combine or sell; modern equipment and complete personnel; profitable work in progress and established contacts; Ohio location. P-7474, Engineering News-Record.

Wanted—Open pit mining engineer for manganese mining in Virginia area. Write full qualifications, age and salary, to Mining Contractors, Inc., Box 790, Cedar Rapids, Iowa.

Experienced structural designers and detailers for work on reinforced concrete and steel highway structures with consulting engineers. Please give age, qualifications and salary requirements in reply. P-7462, Engineering News-Record.

Civil Engineer Public Works Engineering with progressive municipality 65,000 population. Salary $5040-$5340-$5640-$5940. Starting salary contingent on experience. Write Personnel, Municipal Building, Hamilton, Ohio.

Graduate Civil Engineers not over 30, military training completed, interested in learning the building construction business. We offer opportunity for rapid advancement to ambitious, hard working young men willing to accept responsibility. Starting salaries are good and vary with your experience. We operate in five states. Send complete history data. Martin K. Eby Construction Co., 610 N. Main, Wichita, Kansas.

Engineer with estimating and management experience for general contractors office doing industrial and public works building. Excellent opportunity. State age, experience and references. Our employees know of this ad. Midwest location. P-7492, Engineering News-Record.

EMPLOYMENT AGENCIES

Wanted Engineers, Designers, Draftsmen-Structural, Architectural, M.E., C.E., E.E., and Ind., also Teachers and Chemists. Cleveland Engineering Agency, 2132 E. 9, Cleveland.

POSITIONS WANTED

Construction Engineer, graduated with over 20 years experience as resident manager, cost and office engineer on domestic and overseas jobs. Very reliable. Knowledge of foreign languages. Capable of administration, planning and cost control. Just completed overseas assignment in Pacific. Write to PW-7418, Engineering News-Record, 68 Post Street, San Francisco 4, California.

Building Construction Executive, thoroughly experienced estimating, trying sub-contracts, materials, etc.; managing field to produce good costs. PW-7424, Engineering News-Record.

Controller Office Mgr.—12 yrs. experience engineering & construction accounting. Top administrator all financial & accounting functions. Resume on request. Go anywhere. PW-7496, Engineering News-Record.

Engineer, 40 yrs. exp. preparation of contractors' claims for extra work, change orders. Heavy construction, buildings. PW-7482, Engineering News-Record.

Civil Engineer—35, M.S.C.E., 10 years experience in design of bridges, highways, buildings and structures. Presently employed. Desire to better position by change. N. Y. area preferred. PW-7481, Engineering News-Record.

Airport engineer, P.E., N. Y. Layout, grading, drainage, paving, structural reports and specs. Military & C.A.A. Available immediately. PW-7478, Engineering News-Record.

Construction Superintendent—experience in all types of public and commercial bldgs. Available September, good references. PW-7484, Engineering News-Record.

Civil Engineer MIT Graduate project engineer, estimating with some design. Dams, roads, irrigation and airports. Presently employed available two weeks notice. Over 20 yrs. experience. Domestic or foreign. PW-7475, Engineering News-Record.

Civil Engr.—30—N.Y.P.E.—8 years experience, field and office on buildings and devel. —position as owner or arch. representative, or as supt. or estimator on bldg. const.— pref. nor'eastern states. PW-7491, Engineering News-Record.

Registered civil engineer, veteran, age 28, 6 years estimator, purchasing agent, project superintendent for hydraulic dredging contractor seeks challenging position. Salary secondary to opportunity for development in interesting and educational surroundings. PW-7493, Engineering News-Record.

General Supt. or Project Manager thoroughly experienced in heavy construction, industrial and commercial buildings. Experienced as manager, supt., estimator and project engineer. C.E., age 41. Desire permanent connection with expanding contractor in New Jersey or Metropolitan N. Y. area. PW-7494, Engineering News-Record.

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Engineer, B.S. in M.E., desires position in heating air conditioning or bldg. construction. Two years civilian and 4 years Air Force const. exper. Available October 7, Virginia area preferred. PW-7435, Engineering News-Record.

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Additional Employment Opportunities on pages 88 & 89

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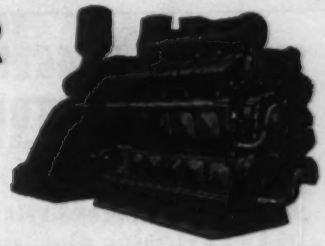

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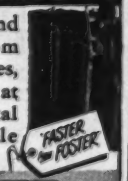

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EDITORIALS

Can Hurricane Damage Be Cut?

As The East Coast of the U. S. enters its annual preoccupation with tracking hurricanes from their birth to disappearance, it is again timely to focus attention on what engineers can do to reduce damage from these seasonal storms. And thanks to Congress, this may well be the year when progress can commence. One of the appropriations Congress left behind was $1 million to the Corps of Engineers to start a study of hurricane damage and of means to counter it. The Corps has announced that the study has begun in New England, and will be extended to Long Island and the Carolinas.

These are indeed the areas where such a study can be most fruitful at the present time since they offer the best examples of recent damage. The study, however, has much broader interest—and justification—since a coastal strip at least a hundred miles deep from Texas around to Maine is a prime hurricane-belt. Anywhere in this belt where human habitation is concentrated the problem is the same and the solutions are closely similar.

A study of hurricane damage and what engineers can do to reduce it must encompass an investigation of two types of effects—those along the shore itself caused by waves and tide, and those on buildings caused by wind or wind-blown rain and debris. And, as between shore damage and building damage, the need for study is about equally compelling.

All hurricanes, of course, cause some damage to shores and beaches, while only the most violent cause severe structural damage. Nevertheless, there is the ever-present possibility that a hurricane of the intensity of the one that struck Miami in 1926 may hit Atlanta, Charleston, Norfolk, Baltimore, Philadelphia—even New York or Boston. And these cities, for the most part, are as inattentive to the danger as Miami was in 1926, when her building code still retained a 20 psi wind design stress just because winds of hurricane force had providentially missed the city for a quarter-century. Since the 1926 disaster the Miami code stress has been raised to 45 psi, and many local engineers use stresses considerably higher—up to as much as 75 psi. It is important that other cities in the hurricane belt take another look at Miami's experience.

Actually a good deal is known about how to counter a hurricane's effect on buildings, whereas shore protection principles are comparatively unknown and inadequately explored. Time and again this is borne in on us, without anything being done to give the federal Beach Erosion Board funds for adequate studies, and without any state action except in two or three instances. If we are to make any real headway in protecting the immense values of the nation's waterfront, we need in every coastal state a competent agency to act both on its own account and in cooperation with the federal government to develop proper knowledge of shore phenomena and protection.

One of the great values of the present Army Engineer study will be to focus attention on this need for state action in tackling shore protection. Another will be to call attention to the inadequacies of many building codes to cope with the danger to buildings from hurricane winds. From the study of hurricane effects in New England, Long Island and the Carolinas, the whole hurricane belt can profit, not only from any new knowledge that is gained, but from the creation of an awareness of the fact that much can be done by merely applying the knowledge we now have.

Sounder Water-Resource Development

Federal participation in water-resource development would be on a much sounder basis than it has been in the past if Congress, when it returns in January, would adopt the recommendations of the report on water resources and power of the Hoover Commission on Organization of the Executive Branch of the Government (ENR June 30, p. 25). Unfortunately, however, Congress will have a great many other things on its mind, besides which most of the water resource proposals cannot be acted on quickly because they involve controversial issues.

But there is one recommendation that could be made effective fairly quickly which would be a major help in weeding out uneconomic projects already authorized but for which no money has been appropriated. This proposal is that the existing Cabinet Committee on Water Resources and the Interagency Committee on Water Resources be transformed into a Water Resources Board in the President's office made up of Cabinet members and five public members recruited from engineers, economists and others of recognized abilities. One of the public members would serve as chairman. To aid this board, the professional staff of the Bureau of the Budget would be expanded to handle evaluation of projects presented for appropriations. The bureau's staff now does that in a limited way.

The primary purpose of this Water Resources Board, the commission stated, would be to determine broad policies to be recommended to the President, and, with his approval, to Congress. It also would coordinate plans and actions of agencies concerned with water-resources development in Washington and in the field.

Every commission or committee that has studied federal practices in relation to water-resource development in recent years has proposed some such form of top-level review of proposed projects. Possibly the President now has the power to set up such a board as part of his executive establishment without waiting for congressional action. However, congressional approval would be advantageous and should not take long.

"17 y M"—Reinforced concrete apartment building, Havana, Cuba. Designed to withstand hurricane-force winds. Architect: Ernesto Gomez Sampera and Martin Dominguez; Structural Engineer: Saenz-Cio Martin; In charge of construction: Bartolome Bestard and Manuel Pardon.

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* For a given set of materials and water-cement ratio, unit water content (water required per cubic yard of concrete) is the most important basic factor affecting the quality of concrete. A.C.I., Committee 613, 1944 Report, Page 655. Bureau of Reclamation Concrete Manual, 5th edition, Page 130.

This 39-story-high apartment house—one of the world's tallest reinforced concrete buildings—is another outstanding structure in which Pozzolith has enabled engineering to better control concrete quality.*

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*For complete story on this project see Engineering News-Record, July 28, 1955, Pages 34-37.

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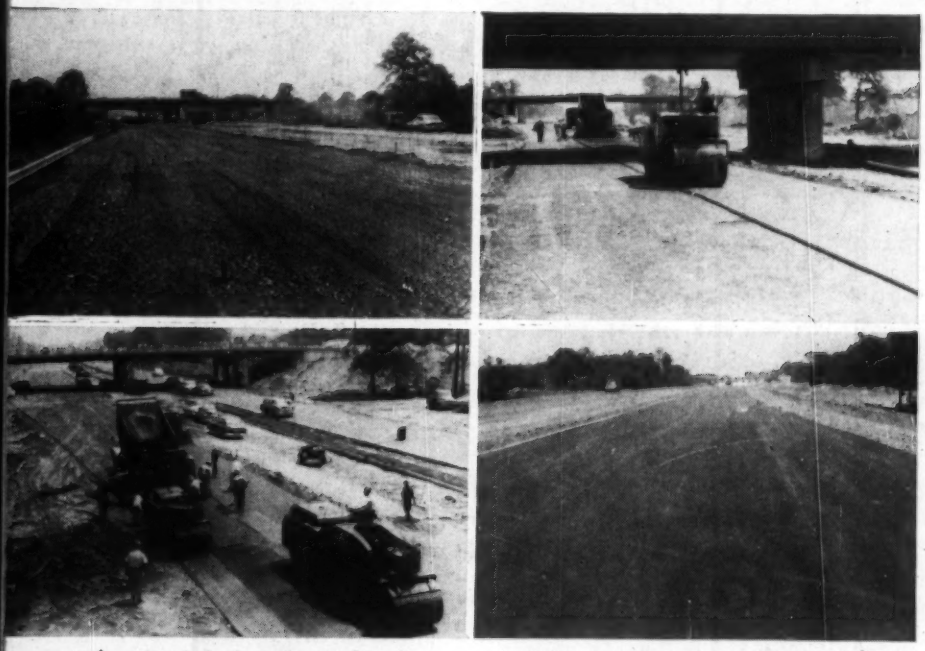
Varying the Asphalt pavement design cuts cost of New Jersey's

Garden State Parkway

Like the New Jersey Turnpike, America's most heavily traveled toll road, all but 20 miles of this State's 165-mile Garden State Parkway is paved with resilient, durable, economical Asphalt. The Parkway connects northern New Jersey with the chain of popular resorts along the Jersey shore, notably Atlantic City and Asbury Park. An estimated 53,000,000 vehicles will use the expressway this year.

In designing the asphalt pavement for the Garden State Parkway, full advantage was taken, in the interest of economy, of the ample supply of sand and gravel in southern New Jersey and of trap rock in the north. A hot-mix sand-asphalt foundation was specified in the south and either an asphalt (penetration) macadam or dry-bound macadam foundation in the north.

While the foundation varied to take advantage of local aggregate, the same dense-graded asphaltic concrete wearing surface was laid north and south.



(top) Completed dry-bound macadam foundation.

(bottom) General view of asphalt paving operations.

(top) Laying second course of hot-mix Texaco Asphaltic Concrete.

(bottom) Finished Texaco Asphaltic Concrete pavement on Garden State Parkway.

THE PHOTOGRAPHS show a heavy-duty 2½-inch Texaco Asphaltic Concrete wearing surface being laid on a northern section of Garden State Parkway. On this section, the asphalt surface was constructed over a 7½-inch dry-bound macadam foundation, which received a tack coat of cutback asphalt. The Texaco Asphaltic Concrete pavement on each half of the divided expressway is 24-feet wide, flanked on both sides by asphalt (penetration) macadam shoulders.

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